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INTERCOMPARISON OF GROUND-BASED AND SPACE SOLAR FLUX MEASUREMENTS

Contract No. NASW-2568

FINAL REPORT

For Period

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Prepared for:
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Prepared By:
Aden B. Meinel
Dean B. McKenney
William T. Beauchamp

Approved By: ____________________
Dean B. McKenney
Program Manager

HELIO ASSOCIATES, INC.
8230 East Broadway
Tucson, Arizona 85710

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I INTRODUCTION

Radiation from the sun falling on the earth's surface has recently become of significant interest in the potential solution of the world's energy needs. Although the sun represents a relatively constant source of energy, the earth's atmosphere and dirunal rotation cause continuous changes in the energy reaching the earth's surface. This research is aimed primarily at performing detailed temporal measurements of the solar flux at one location. These data are then analyzed and compared to the potential of space measurements which allow one to consider the flux falling on areas of the earth.

The most important result of the research is that the temporal charcteristics of the flux in the presence of a real atmosphere would be difficult to obtain from space and that the variations in the flux can be highly significant in regard to most solar conversion schemes.

The detailed results of the research are presented in the following section. We discuss the instruments developed to separate the direct and scattered solar flux, the computer analysis methods developed, and the results of the research, presented as both graphical and tabular data.

II TECHNICAL RESULTS

1. Introduction

In this research, we have used several instruments and analysis methods to measure the solar flux on a daily continuous basis. The basic aim of the research was to measure the temporal dependence of the direct flux and the scattered flux.

There are several instruments available today which have been designed specifically for solar insolation measurements. The line of instruments offered by Eppley Laboratories in Newport, Rhode Island, is perhaps representative of the current state-of-the-art in commercial scientific instruments. The National Weather Service has used these instruments for many years to gather data over a network of approximately 80 stations in the United States. At the NOAA/NSF Workshop on Solar Insolation, held at Silver Spring, Maryland in November 1973, there was a strong consensus of opinion that the data were both inadequate and inaccurate in most instances.

In this research, we are addressing the problem of the inadequacy of the data while maintaining reasonably high standards of accuracy. One of the main points of inadequacy discussed was a general lack of sufficiently detailed data for all weather conditions and locations. This research deals

with the methodology and instrumentation needed to provide more adequate data for the user.

Several highly accurate absolute radiometers have been developed over the past several years. We have elected to use secondary radiometers which will allow greater ease of operation and better applicability of the data to current and future needs for solar insolation data. The instrument development task described here gives details of two instruments which are being refined for this application.

The goal was to develop instruments to measure unambiguously two of the three following quantities: 1) the total solar flux on a horizontal plane, Φ_T; 2) the direct (not scattered) flux either normal to the direction of the sun, Φ_{dn}, or on a horizontal plane, Φ_d; 3) the diffuse (scattered) solar flux on a horizontal plane, Φ_D. In the literature[1] these quantities have also been called the global or G-radiation, the I-radiation, and the D-radiation respectively. To determine all three quantities, we must specify two of them since

$$\Phi_T = \Phi_d + \Phi_D.$$

To accomplish this goal, two Helio Associates instruments were slightly modified to measure concurrently both the total and diffuse radiation fluxes. We have also included the use of an instrument to measure the direct normal radiation flux, Φ_{dn}, for comparison with data from the National Weather Service.

The research results are discussed below in three sections dealing with Instrumentation, Calibration, and Data Analysis.

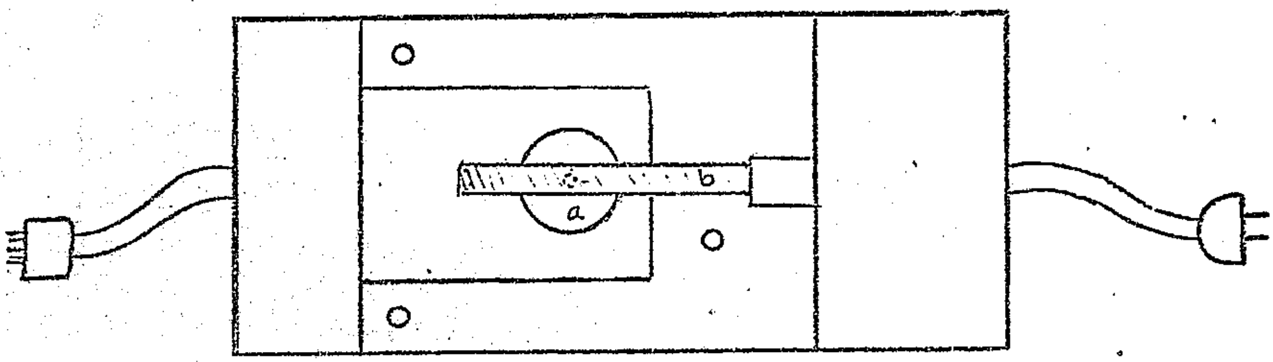
2. Instruments

The instruments used to specify the components of the solar flux are the Moving Bar Occulting Radiometer (MBOR), and the Fixed Bar Occulting Radiometer (FBOR). In addition, a widely used precision instrument with NBS traceable calibration, an Eppley Pyrheliometer, is used as a secondary comparison standard. Descriptions of these instruments follow.

2.1 Moving Bar Occulting Radiometer

A sketch of the Moving Bar Occulting Radiometer is shown in Figure 1, and a photograph of the instrument in its installed position is shown in Figure 2. This instrument has a 4.8mm diameter circular detector aperture located on the axis of revolution of a circular occulting bar. The surface of the aperture is opal glass. This surface-detector combination insures a cosine like angular response for the instrument. The occulting bar is driven at a rate of 1/3 RPM, and approximates a cross section such that a sharp shadow is cast on the aperture once per revolution of the bar in the field of view. To minimize the error in the diffuse flux caused by the presence of the bar, its width is specified by

$$w = d + 2R \sin \left(\tfrac{1}{2}^{\circ}\right) \tag{1}$$



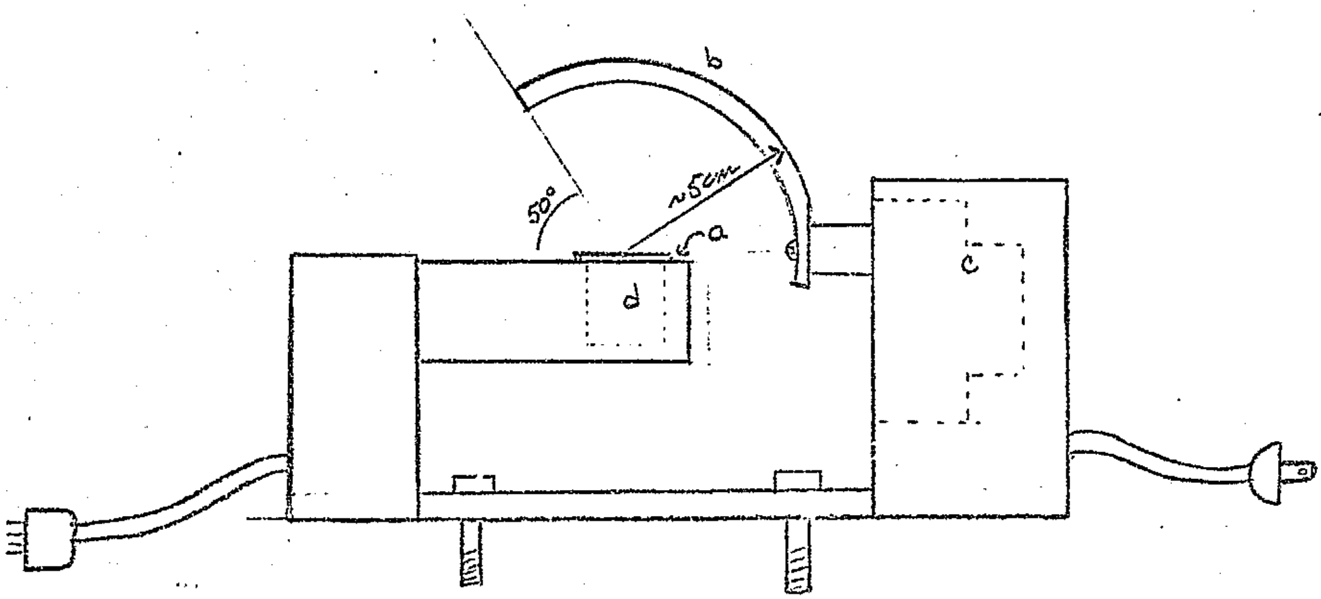


Figure 1 Sketch of the Moving Bar Occulting Radiometer (MBOR)

a - Aperture plate

b - Shade bar

c - Motor housing

d - Detector

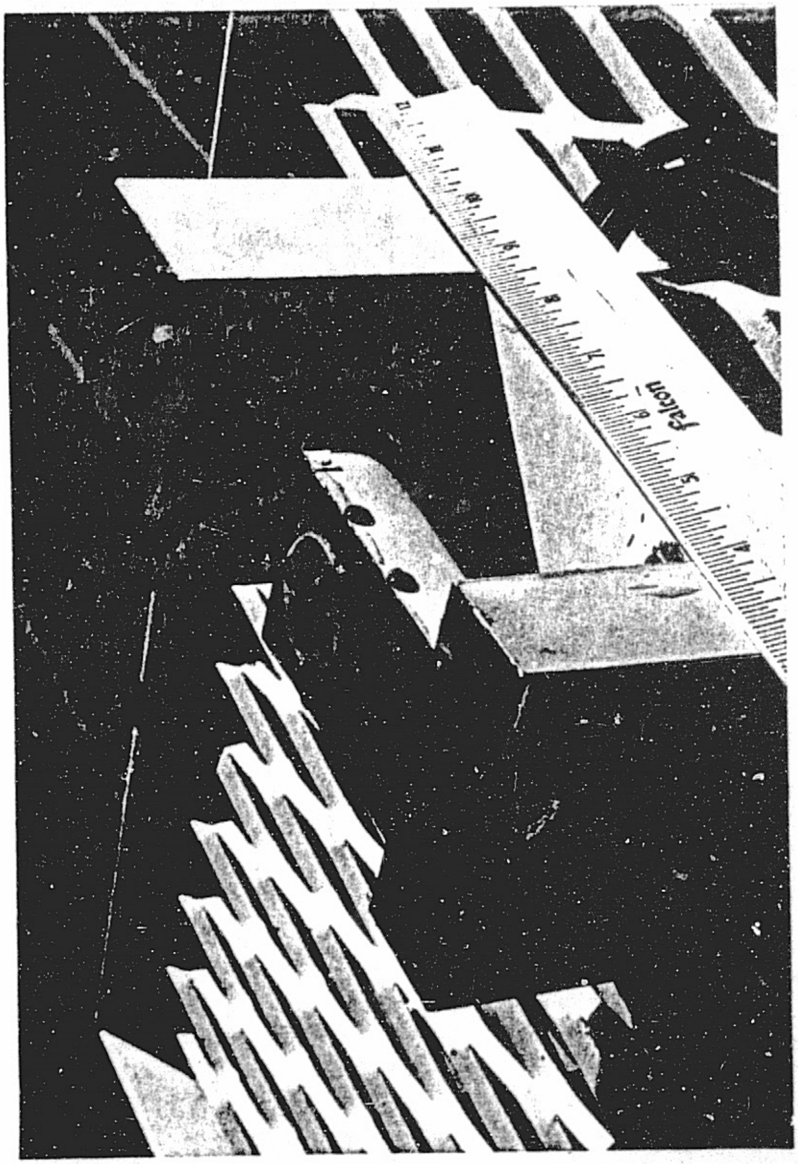


Figure 2 Photograph of the Moving Bar Occulting Radiometer (MBOR)

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where d is the aperture diameter and R is the radius of curvature of the bar. The bar is also cut so its arc length is sufficient for the maximum solar altitude. A correction factor has been calculated which takes into account the diffuse radiation lost to the detector due to the presence of the bar in the 2π steradian solid angle of view. When the bar is not in line with the sun, the detector produces a signal proportional to the total flux (Φ_T). When the bar occults the sun, the detector signal is proportional to only the scattered light intensity (Φ_D). The difference in these two quantities is the direct radiation ϕ_d. The resulting output vs time is shown on the chart record in Figure 3. The values of Φ_T, Φ_D, and ϕ_d, as obtained from these data are labeled for easy identification.

The overall size of this instrument is about 20 x 6.5 x 7 cm. It is, therefore, a compact package which is suited to field operation. The detector is mounted beneath the aperture plate as shown in Figure 4. The area immediately above the aperture plate, houses a neutral density filter required to keep some detectors from saturating at the maximum flux levels. One of the features of this simple instrument is that the form of the analog output renders a good visual representation of the relative amounts of the three flux quantities. However, a digital readout of the data from this instrument is difficult. It is necessary for this

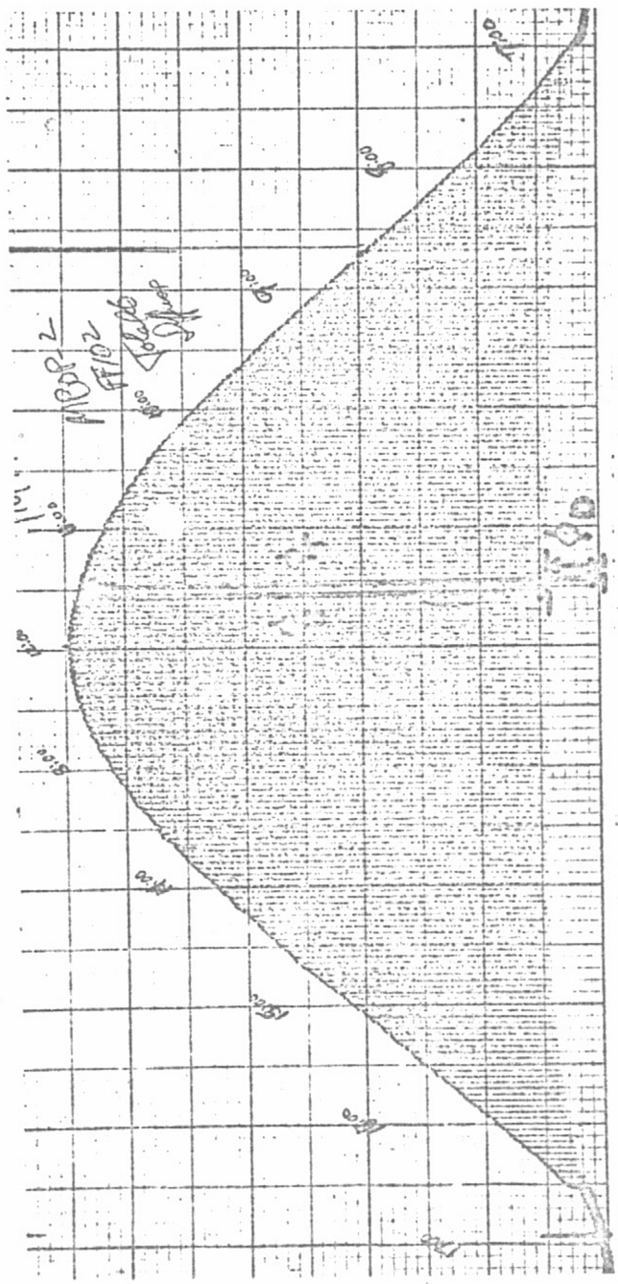

Figure 3 Typical clear-day output from the Moving Bar Occulting Radiometer (MBOR)

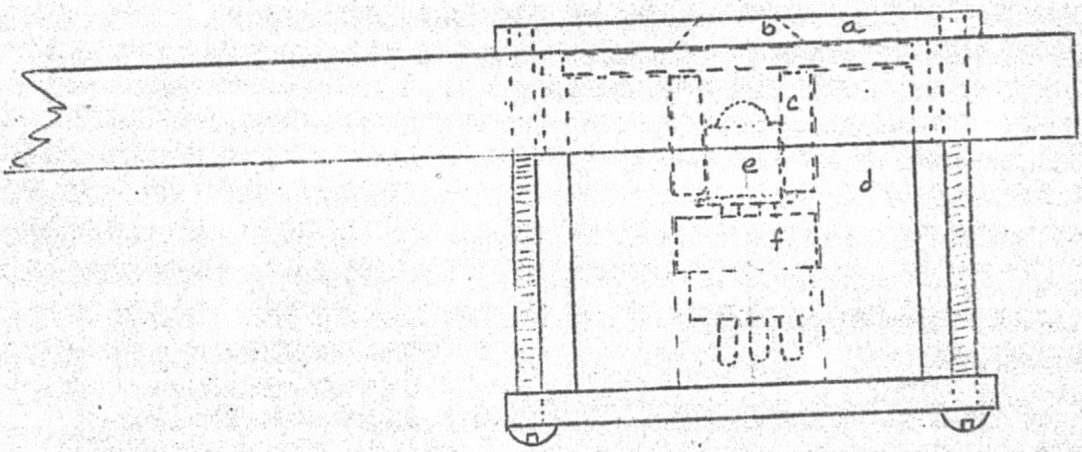

Figure 4 Detector cell design for the MBOR

a - Aperture plate

b - Diffuser

c - Detector locating sleeve

d - Cell cylinder

e - Detector (TO-5 can)

f - Transistor socket

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study to be able to process the data for calibration and statistical analysis. Computer compatible digital readouts reduce the labor required for these analyses. The MBOR presents a problem regarding digital readout due to the difficulty in specifying the position of the occulting bar when measuring Φ_D. There is no simple way to specify whether a change in the output is due to an occultation by the bar or by a cloud.

2.2 Fixed Bar Occulting Radiometer

An alternate design which does allow a digital output format is the Fixed Bar Occulting Radiometer (FBOR). This instrument, shown in the sketch in Figure 5, and in the photograph in Figure 6, consists of a circular ring occulting bar oriented East-West around the detector plane. The ring slides along an axis tilted with respect to the horizontal by an angle equal to the local lattitude (32.2° for Tucson). The motion of the bar along this axis adjusts for the seasonal variation of solar declination. The occulting bar has a diameter of 30.5 cm, and its width, from Eq.(1) is 5.6mm. The occulting bar is placed so that at the equinoxes, its center of curvature will coincide with the center of the aperture over one of the detectors. A second detector is mounted close to the first, but always out of the shadow. The first detector, therefore, measures only the diffuse or sky radiation, while the second measures the total flux. This instrument has also been fitted with detector heads which

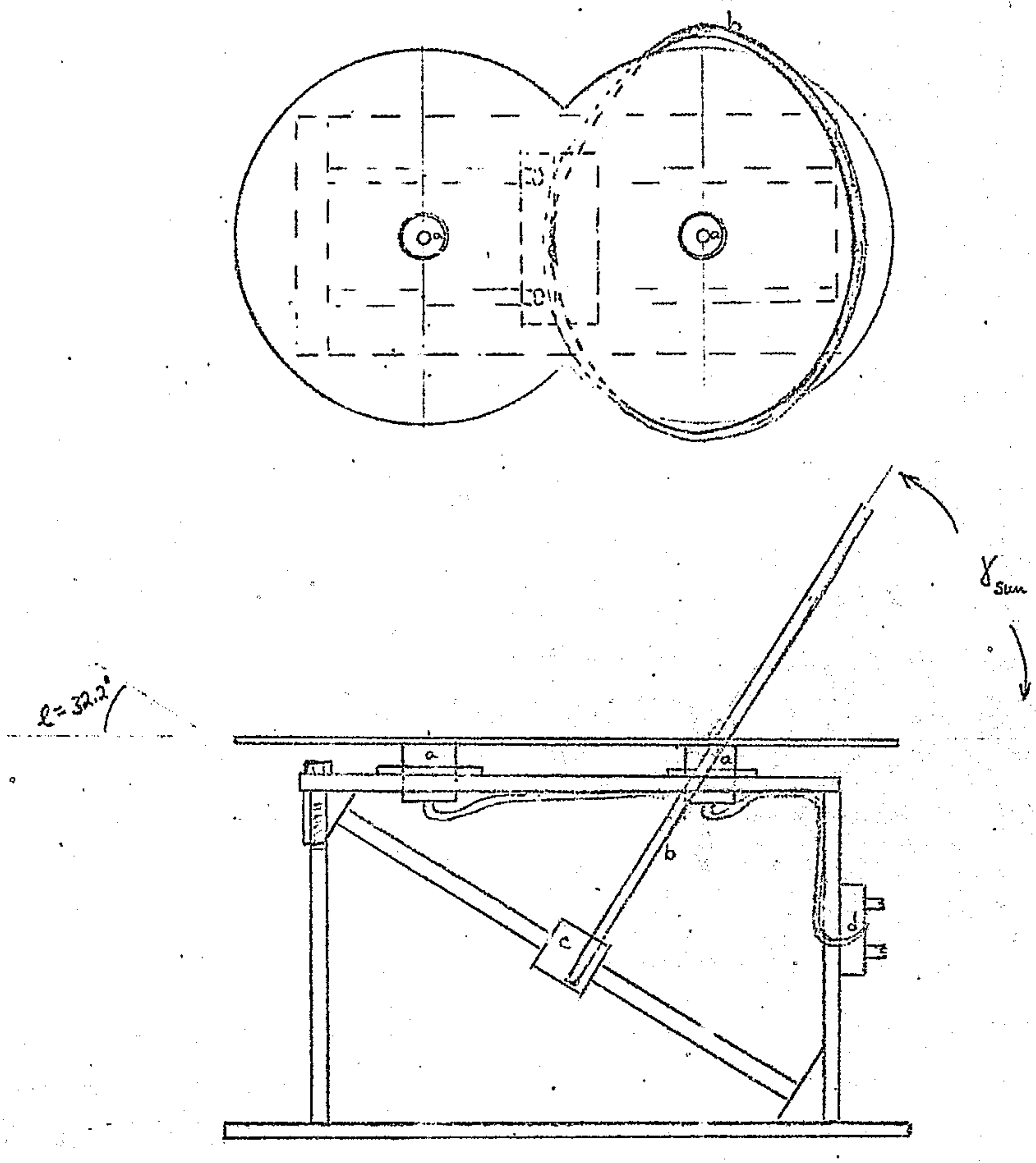

Figure 5 Sketch of the Fixed Bar Occulting Radiometer (FBOR)

a - Detector cells

b - Occulting bar

c - Slider assembly

d - Terminal block, electronic outputs

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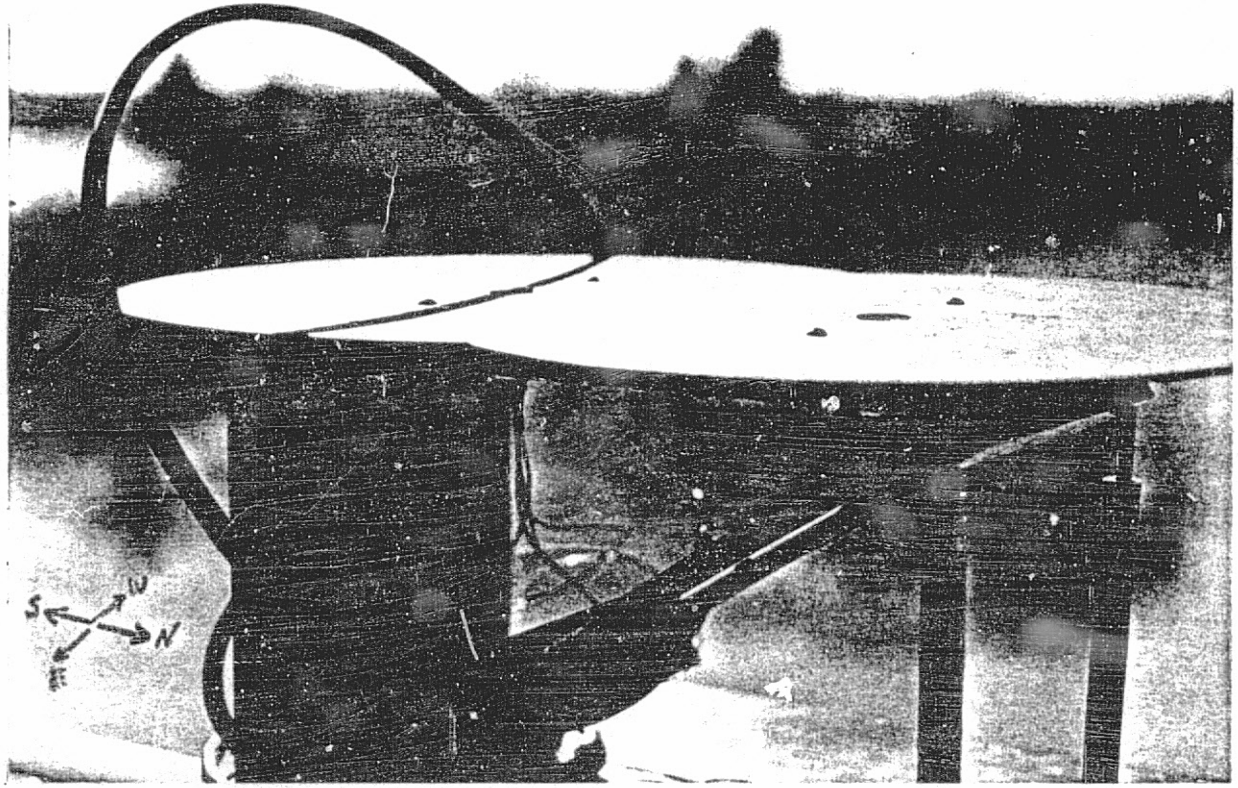

Figure 6 Photograph of the Fixed Bar Occulting Radiometer (FBOR)

allow for measurement of the solar flux in four distinct spectral ranges. These multi-detector heads are arranged as shown in Figure 7. Light incident on the nearly lambertian surface of the diffuser plate is reradiated into four fiber optic light guides. These guides conduct the light down to four filter chambers symetrically placed around the vertical normal to the center of the diffuser. Four photodiodes look at the ends of the light guides through one empty chamber and three different Schott filters. The filters have sharp cutoff characteristics as shown by the transmission curves in Figure 8. The combination of light pipe, filter, and detector, are calibrated against a thermal pile detector plus the appropriate filter. The result is a device that measures the total and the diffuse energy incident on the glass screen integrated over all wavelengths larger than the cutoff of the filter. The filters chosen are commonly used by the National Weather Service and others for this type of measurement. An instrument tower was designed and constructed as shown in the photographs in Figure 9. The 6 meter high instrument platform allows nearly unobstructed view of the horizon for the instruments. Access to the instruments is by ladder to a lower landing, placed so that the equipment is chest level. The tower has been found to be stable enough to insure accurate tracking for the pyrheliometer.

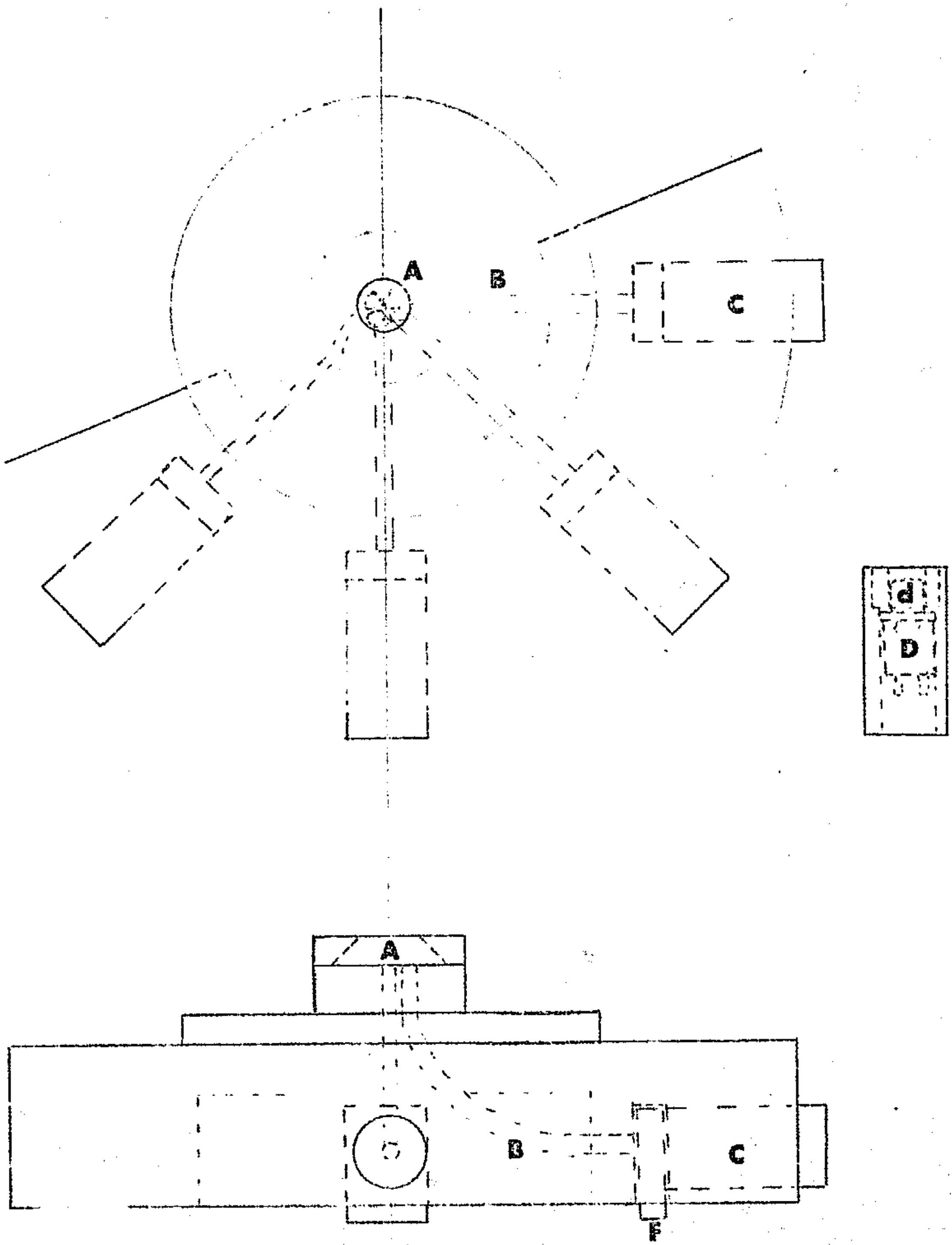

Figure 7 Sketch of the Multi-detector head for the FBOR showing: A - the diffuser screen; B - the light pipe; C - the detector cell; d - the detector and its socket -D; and F - the filter and filter chamber.

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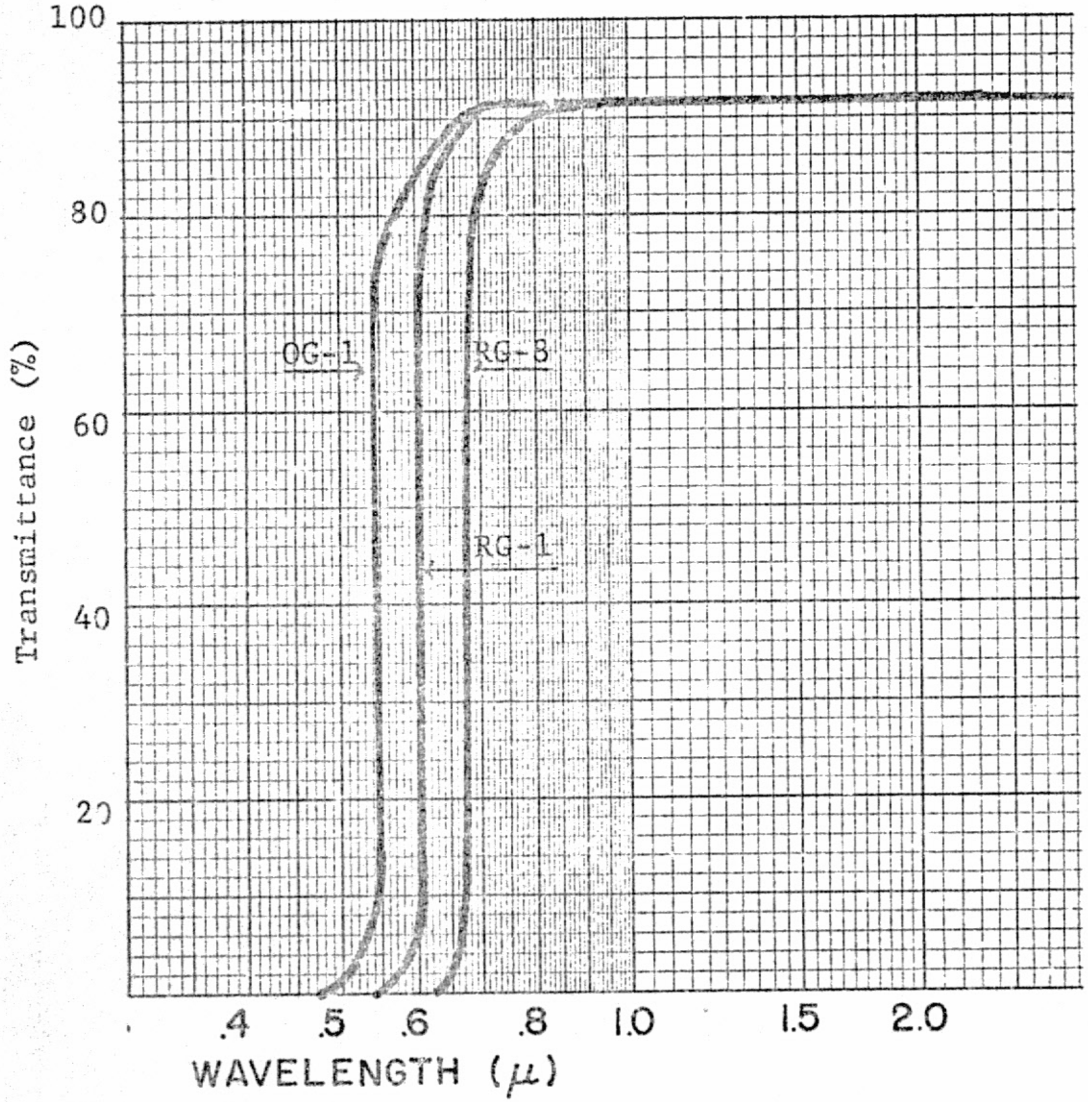


Figure 8 Transmittances vs Wavelength for the Filters used in the FBOR.

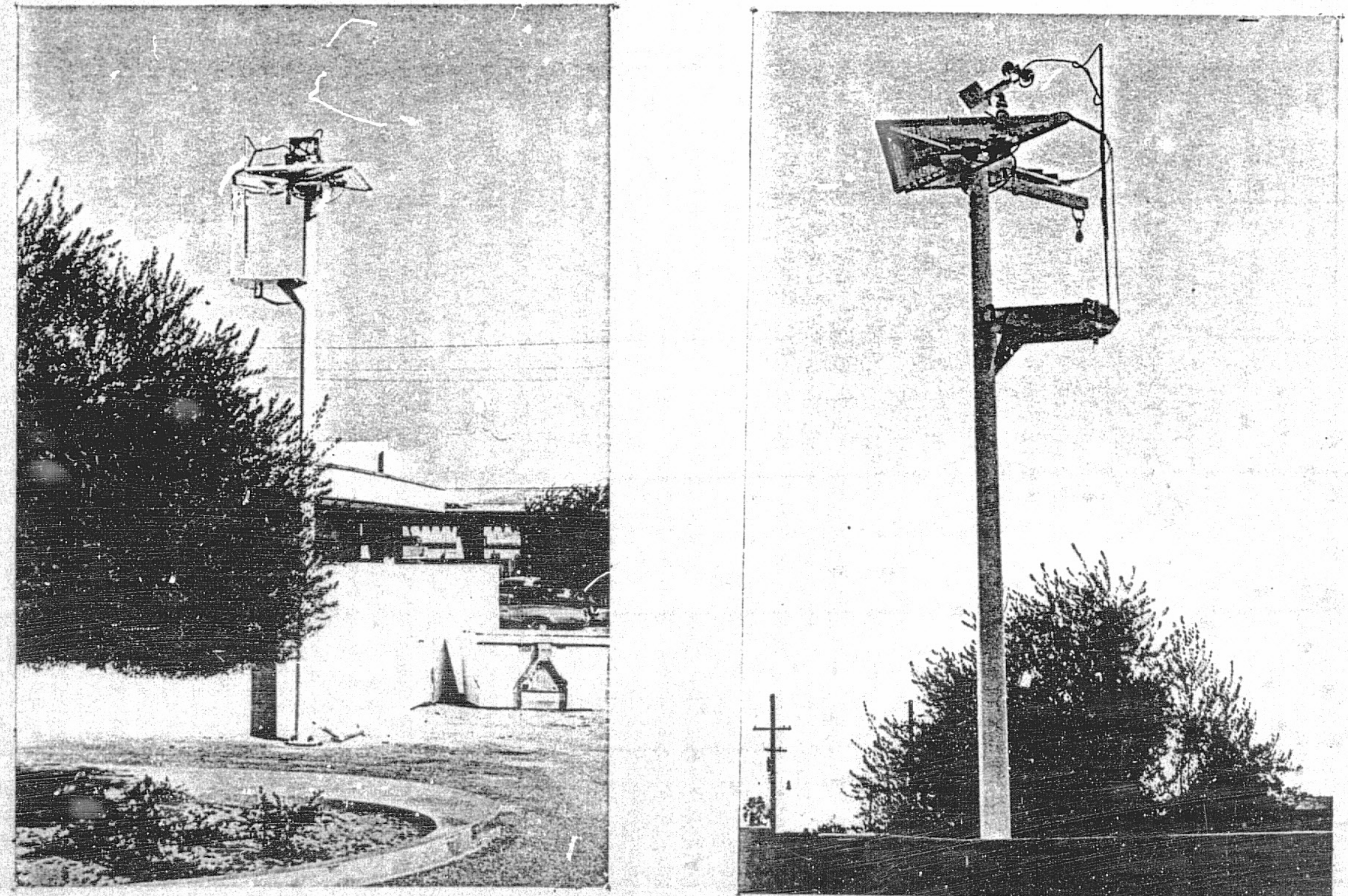


Figure 9 Photographs of instrument tower

The accuracy of the measurements, the reliability, and the simplicity of the instruments, depends on the choice of the detector. There is a wide choice of types of detectors suitable for radiometric use. In general, detectors fall into two categories that typify the mode of operation: 1) photoelectric devices such as photodiodes, photomultipliers, phototransistors, and photoresistors, and 2) thermal devices such as thermal piles, pyroelectrics, and thermistors.

The selection criteria for an ideal detector should include the following: 1) quality and long service life; 2) operating temperature range from -10 to +70^{o}C; 3) high sensitivity over the range 0.3μm $<\lambda<$ 1.5μm, 4) flat spectral response over the same range; 5) suitability to radiometric use; 6) reasonable cost; and 7) simplicity of use. When available detectors are judged on the basis of these criteria, there are advantages and disadvantages for each detector type.

Among the photoelectric devices, either photodiodes or phototransistors offer the most advantages for use in our instruments.

<u>Photodiodes</u> have two modes of operation. In the photocurrent mode, the diodes generate outputs that are either linear or logarithmic depending on the load resistance. If the load resistance is near zero, the current vs light level is linear over several decades. The photodiodes have an advantage because of the low null drift in the zero bias photovoltaic mode due to the absence of dark current. Photodiodes can also be used as photoconductors but show temperature

drift when used in this manner. The sensitivity of photodiode-operational amplifier combination described below is well matched to solar measurement applications. Photodiodes come in small, simple packages such as TO-5 transistor cans, and can be fitted with lenses. One disadvantage for photodiodes is the characteristic spectral response for the silicon device. The peak sensitivity is usually in the near infrared between 0.8μm and 0.9μm with lower response in the near ultraviolet. It is not difficult, however, to use such a device, and compensate for the spectral response by filtering and calibration.

Phototransistors are, in general, limited to the photoconductive mode with inherent zero drift problems. Phototransistors with base connections can also be used like photodiodes, but offer no advantages over simple photodiodes when used in this manner.

Photomultipliers have several disadvantages for use in our instruments. They are usually bulky to use, are delicate, and require costly auxiliary circuits in the form of power supplies and amplifiers.

The thermal devices have an advantage in their flat spectral response over wide spectral ranges. The response of these devices depends only on the type of absorber coating used to convert the incident radiation into heat. Since good

output and high sensitivity without the need for high voltages or a bulky detector. The principle reason for the op-amp is shown by the characteristic load curves for the diode shown in Figure 10. From the graph, one can see that at zero bias (photovoltaic) and zero load resistance, one can get a linear response characteristic. The use of the amplifier as shown in Figure 11 yields such a zero load condition and still maintains an adequate output signal. This is because the load on the photodiode is equal to the feedback resistance R divided by the open loop amplifier gain G.

The actual circuit used in our case is shown in Figure 12. Since the open loop gain of the LM741 is about 2×10^5, and the feedback resistance is about $2 \times 10^6 \Omega$, the photodiode sees a load resistance of 10Ω. Figure 13 shows the deviation from linearity that can be expected for a cell that has an effective load resistance of this value. From the plot, one can see that even at currents as high as 1mA, the device is linear to two parts in 10^5 (0.002%). One can calculate the actual current from the photodiode according to:

$$V_{out} = R_f i_o$$

or

$$i_o = V_{out}/R_f.$$

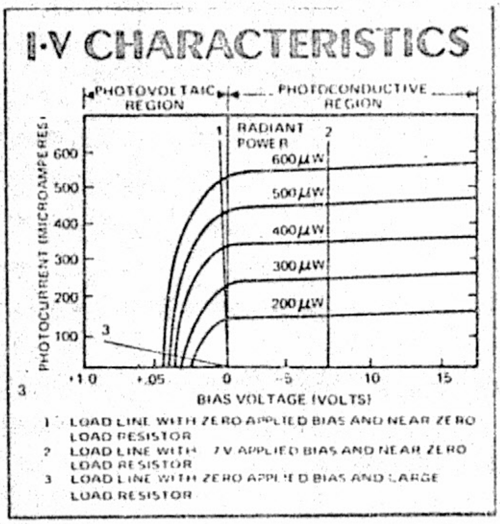


Figure 10 Load line plot for a typical photodiode (UDT3DP)

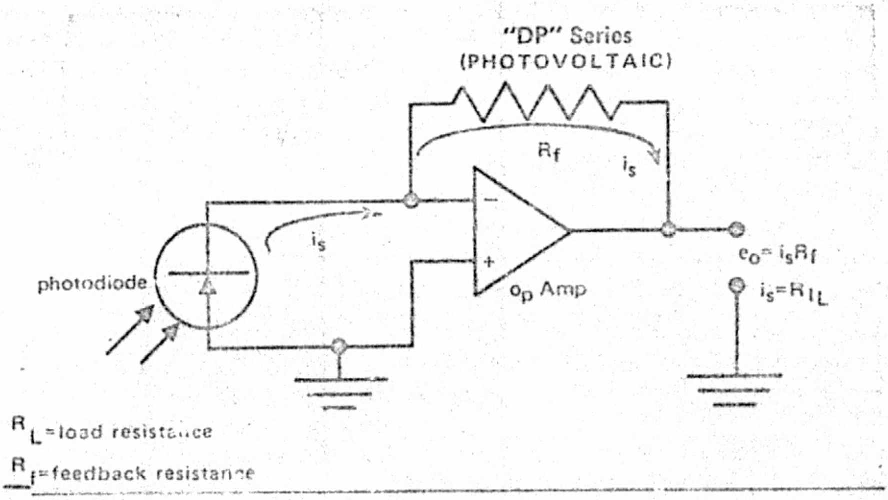
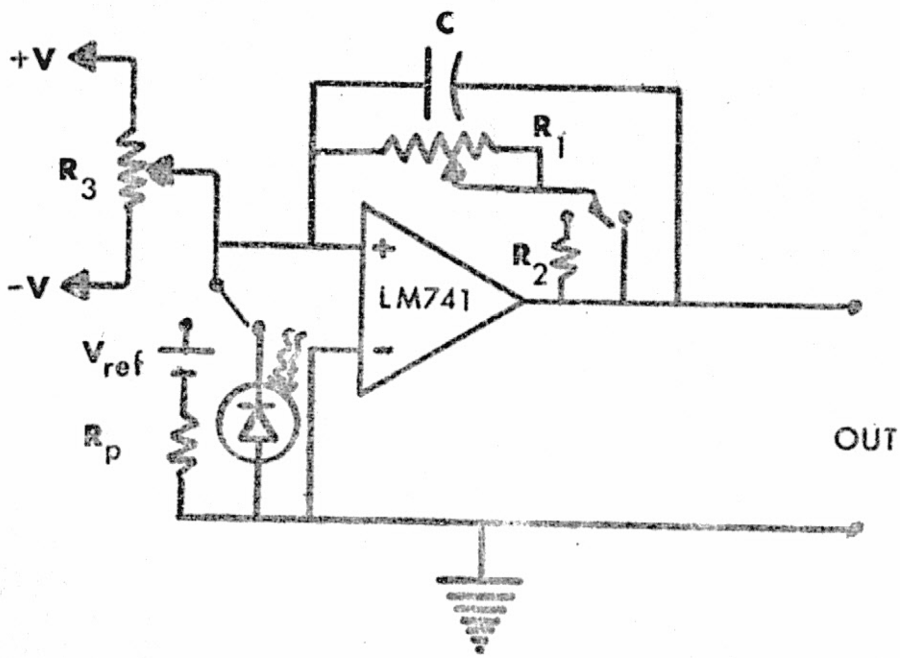


Figure 11 Circuit schematic for the photodiode - operational amplifier circuit. i_s = photodiode sensitivity x light flux, $R_L = R_f/G$ where G = open loop gain.



$C = 0.047\mu f$

$R_1 = 2M\Omega$

$R_2 = 2M\Omega$

$R_3 = 12M\Omega$

Figure 12 Schematic diagram of Helio circuit used for the current-to-voltage transducer.

R_1, R_2 feedback resistors ($R_f = R_1 + R_2$ or R_1)

R_3 zero offset adjustment

V_{ref} reference voltage for circuit gain calibration

R_p reference precision resistor

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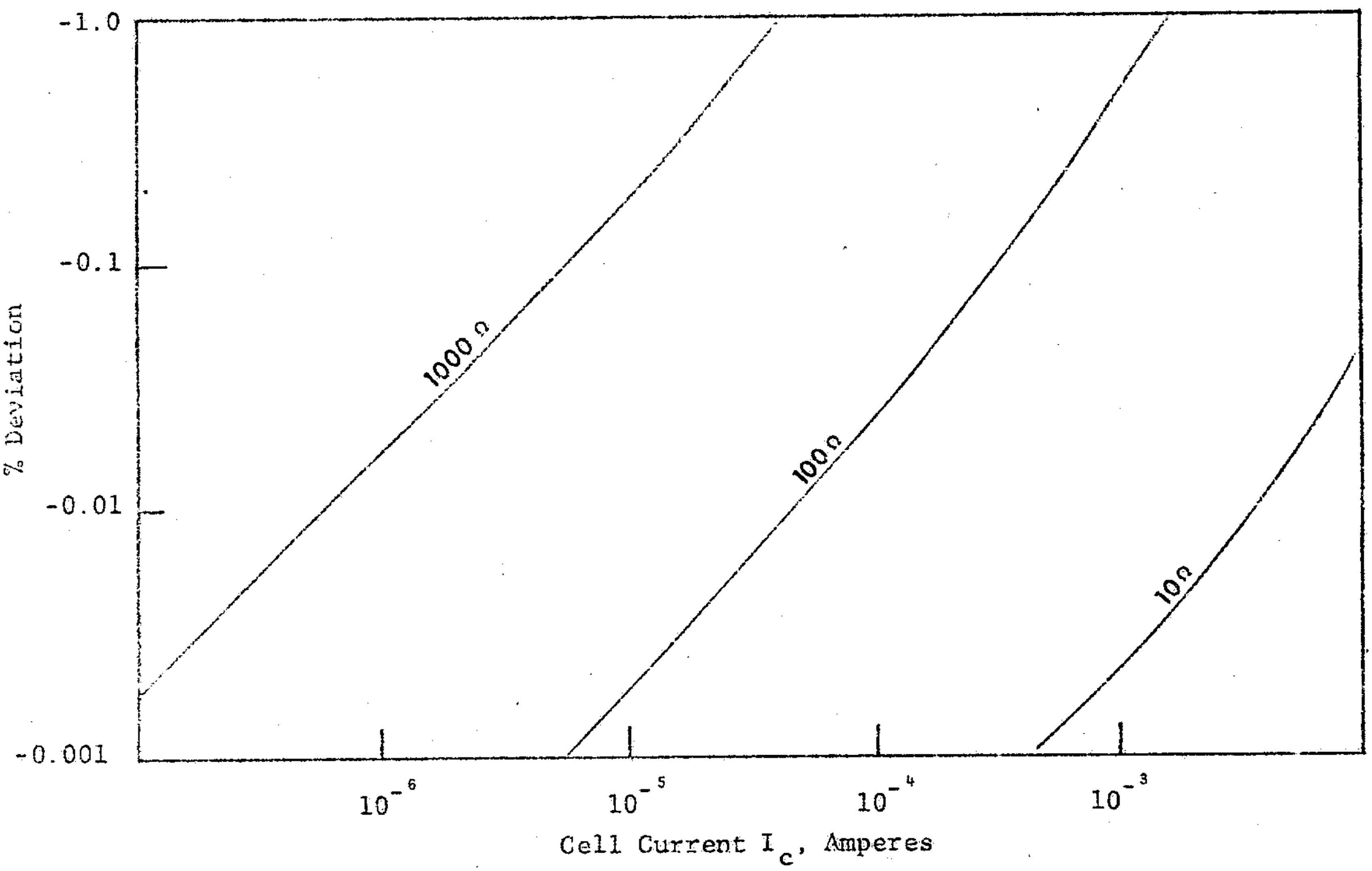


Figure 13 Deviation from linearity of the silicon cell response for short-circuit operation.

In our case, for the maximum flux level, $V_{out} \approx 0.8V$ for $R_f \approx 1.6M\Omega$, so that $i_o \approx 5 \times 10^{-7}$A. Referring again to Figure 13, we can see that the device is well within the linear region of operation for a 10Ω load. In the circuit for each detector, a reference current source or an open circuit may be applied to the operational amplifier for calibration of the gain setting, or input zero offset respectively. Adjustment of R_3 in Figure 12 allows the application of a small compensating voltage to the input to counteract the output offsets inherent in the amplifier design. The temperature drift of this type of null adjustment is considerably less than that associated with the internal adjustments. A reference current is used to check gain settings. The current is generated by the combination of a precision voltage source V_{ref}, and the precision resistor R_p , as shown in Figure 12. The current is set at a level approximately equal to the photodiode current with full solar flux. This current source is stable to within 0.1%. The readings for each of the calibration runs are used as a reference to check the gain stability over a long period. Table 1 shows that the stability is better than 1%.

For simplicity and convenience, the circuit cards for each detector are mounted in a card file as shown at the top of the photo in Figure 14. The adjustments for zero and gain are attainable by screw diver only through the holes

Channel	1	2	3	4	5	9	6	7	8
Data Logger	17	4	4	6	7	16	13	14	15
Date:									
8-15-74	7.29	9.89	7.52	7.63	9.64	10.12	9.77	7.84	8.47
8-20-74	7.29	9.89	7.50	7.63	9.64	10.10	9.75	7.83	8.45
8-28-74	7.29	9.87	7.52	7.63	9.60	10.11	9.77	7.84	8.49
9- 3-74	7.29	9.85	7.49	7.59	9.59	10.07	9.71	7.82	8.46
9- 9-74	7.27	9.82	7.47	7.57	9.58	10.03	9.71	7.81	8.46
9-12-74	7.27	9.84	7.47	7.57	9.59	10.05	9.69	7.83	8.47
9-19-74	7.25	9.83	7.47	7.57	9.57	10.06	9.69	7.80	8.47
Average:	7.27	9.85	7.49	7.60	9.60	10.08	9.72	7.82	8.47
Down Trend Error:	.0055	.007	.0067	.0079	.0073	.007	.008	.005	.005

NOTE: Apparent long term drift downward <0.8%

Table 1 Circuit output readings with reference current as input. Periodic readings over one month period.

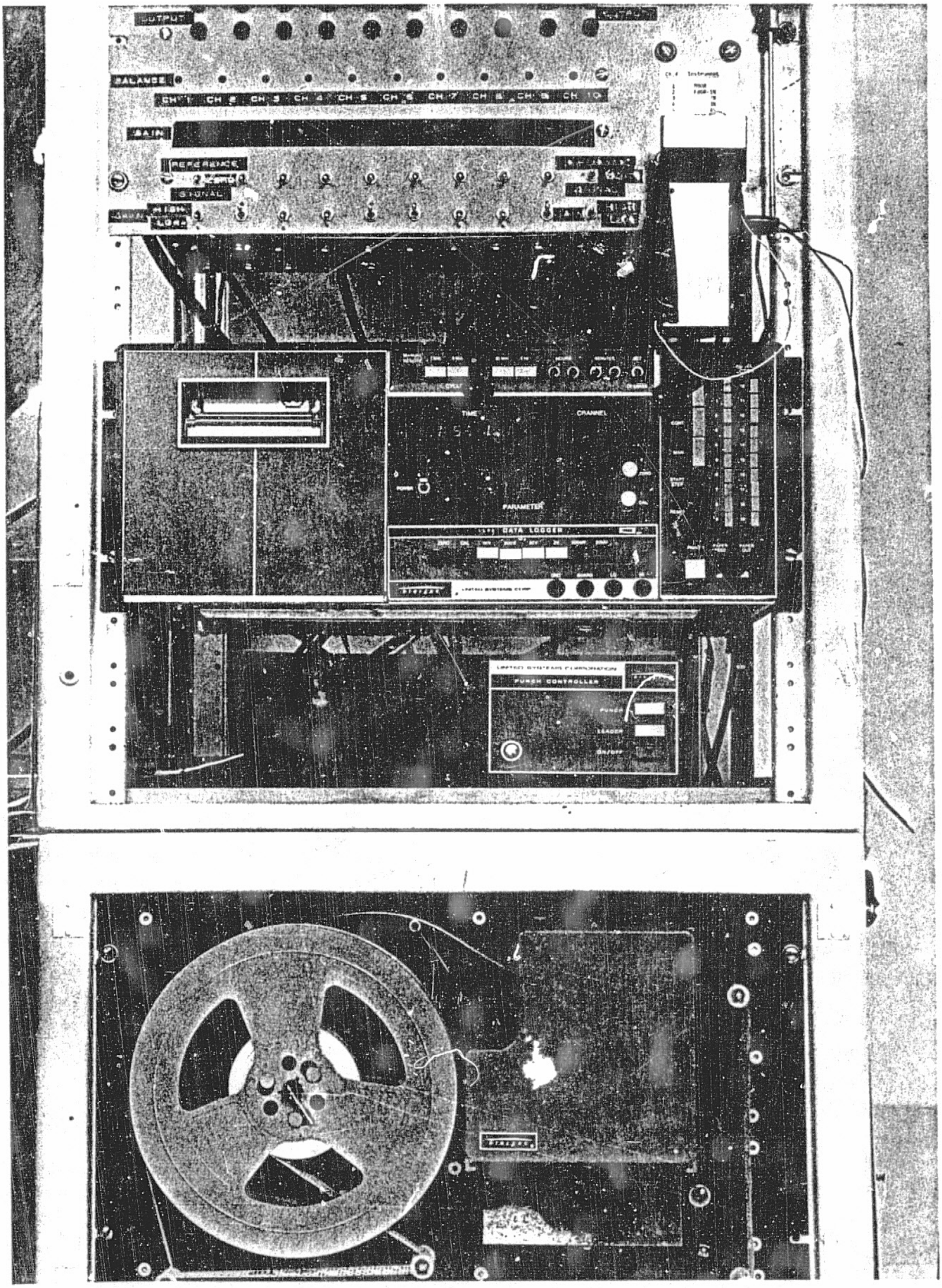


Figure 14 Photograph of circuit card bin, data logger, and tape punch.

in the front panel. Switches are provided to allow initial choice of high or low gain and choice of inputs between zero, reference, or signal. The circuits are well shielded to prevent interference from local switching circuits or AC power lines.

2.3 Data Collection

The MBOR output format as shown in Figure 13 is obtained as 10" wide hard copy from a "Brown Electronic" potentiometric recorder with a time base of 1"/hr. The resulting analog output allows a good visual representation of the solar day at a glance, but would require considerable reading time to allow a detailed mathematical analysis. We display the information as shown in Figure 15. This calendar of solar data, shows the trend in the solar flux data, and readily illustrates the type of day classification discussed below.

The FBOR output is specifically designed for computer analysis. Therefore, this system is read digitally by a data logger which punches the data directly onto paper tape. The digital logging system is shown schematically in Figure 16, and in the photo in Figure 14. The data logger is a Digitec model 1268, with 20 channel capacity and the specifications given in Figure 17. The data logger is set to scan and record the 9 channels of data once every 10 minutes from sunrise to sunset. The time is read and punched before each scan. The data channels are listed in Table 2.

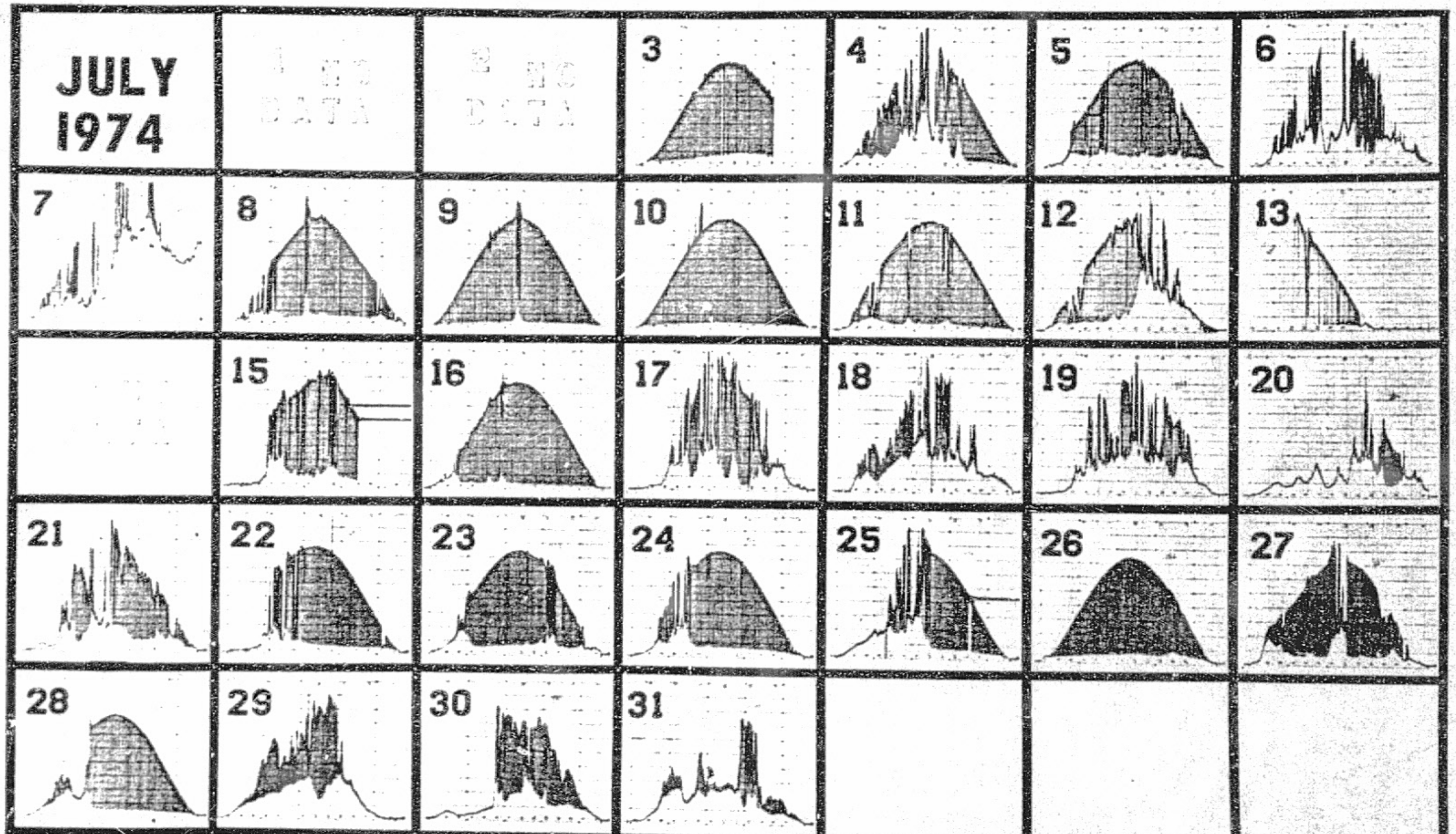


Figure 15 Data from MBOR for the month of July

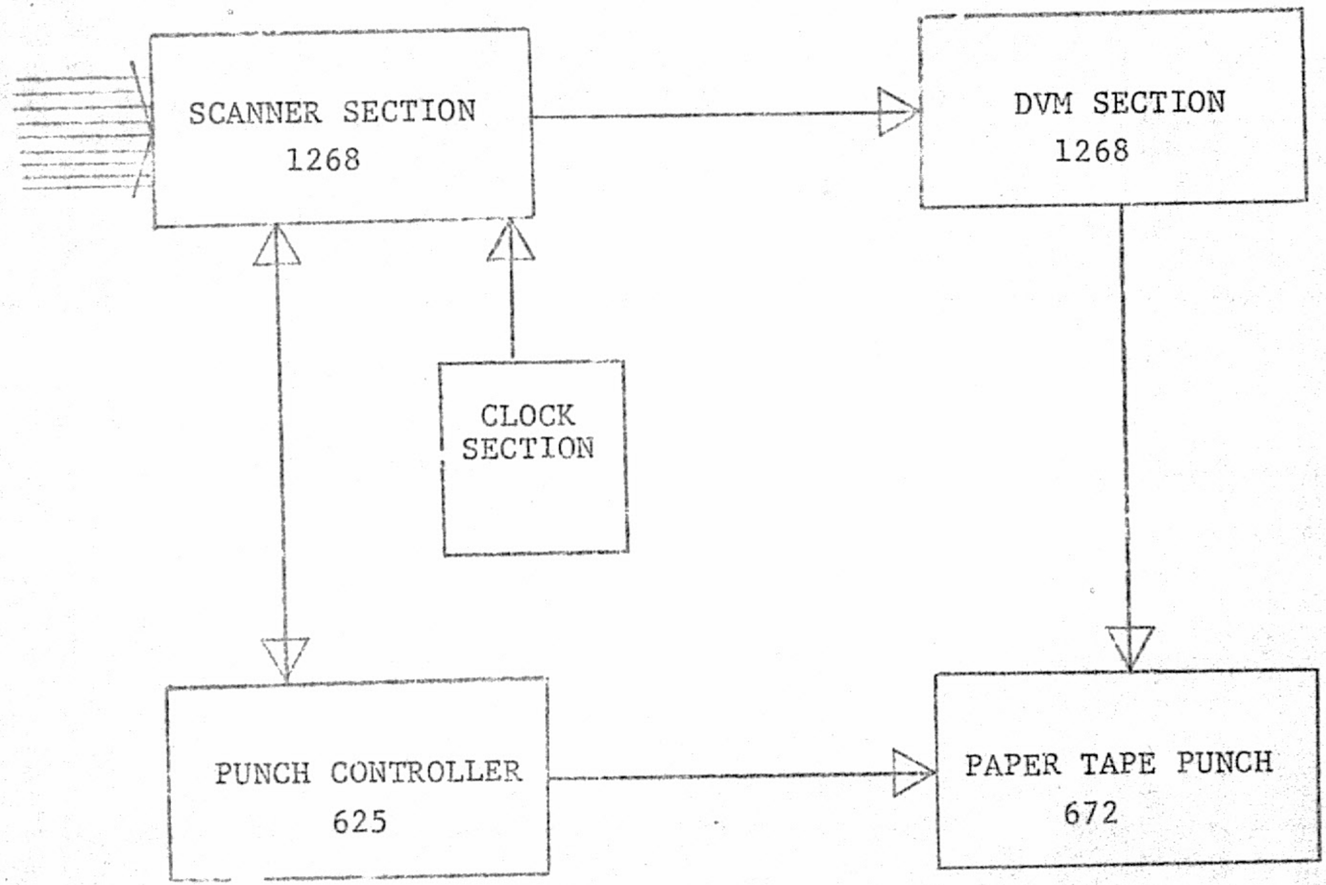
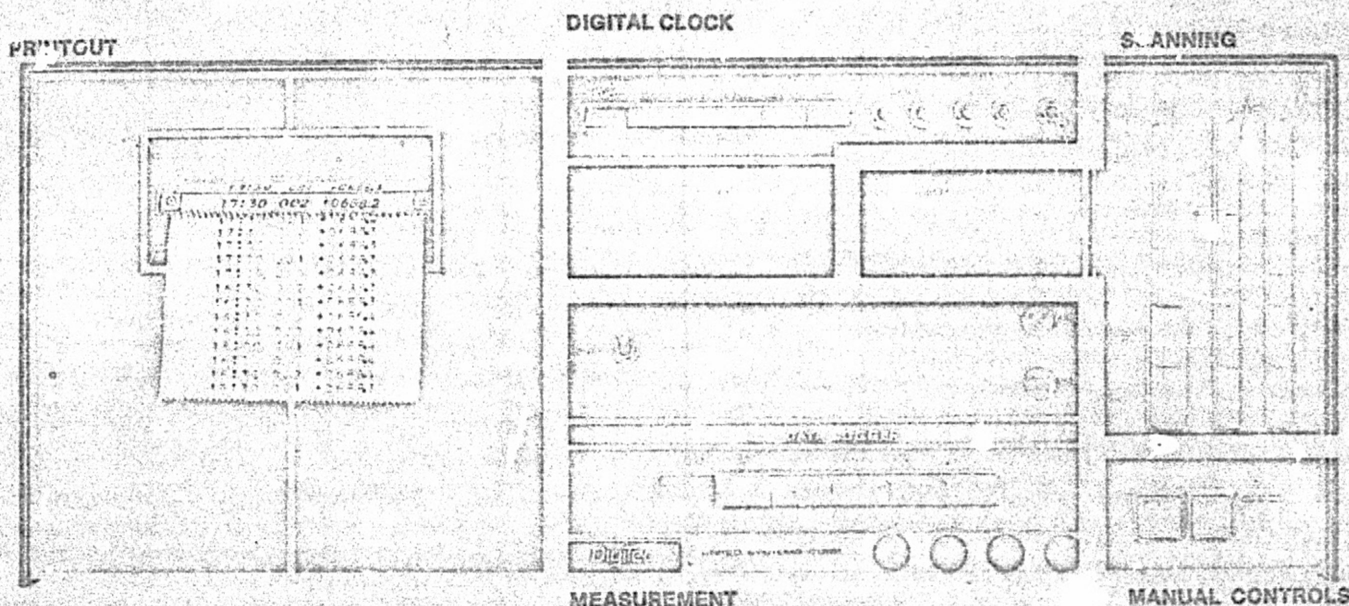


Figure 16 Schematic of Data Logger system.

Specifications

1268	DC Millivolts	±20mV	1µV	±(.05% of reading +.01% of range +10µV)	10MΩ	550mS	(±)mV	$2515
		±200mV	10µV					
	DC Volts	±2V	100µV	±(.02% of reading +.005% of range)			(±)V	
		±20V	1mV					
		±100V (1)	10mV					



THE CLOCK SECTION of DigiTec's Data Logger incorporates a convenient, separate visual display of time. Setting time is accomplished with an individual pushbutton for each digit. With the "Set/Operate" switch in the "Set" position, internally gated pulses at 1 second intervals cause each display to count as the appropriate pushbutton is depressed. Once the time has been set, the "Set/Operate" switch may be placed in the "Operate" position, which starts the clock timing. For time interval testing, the "Set/Operate" switch may be placed in the "Set" position which stops the timing but does not reset the display.

In addition to visually displaying time and generating a print command to the Printer, the clock section contains a cycle interval feature. This feature allows the Data Logger to operate unattended at command intervals of 1, 2, 10, 20 minutes and 1 hour. The cycle interval may also be generated from a remote source by depressing the "Manual/Remote" pushbutton. The remote cycle start is useful for time intervals other than those available internally and for coincidence recording as a result of external occurrences.

Another feature incorporated in the clock section is detection and indication of power loss. For example, should the power line fail, the clock will reset to 00:00 when power is returned. Upon return of power, the Data Logger will continue functioning in its previous mode of operation.

The first printout upon return of power will indicate time 00:00. By observing the last time printed before power loss and computing the 00:00 to real time, it can be determined how long power was down. Visual indication, a flashing colon, is also incorporated to alert the operator that a power loss has occurred.

The clock section serves yet another purpose as illustrated on the typical printout. The time is printed on the first and last active points for obvious block-separation of data.

Figure 17 Specifications for the 1268 Data Logger.

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THE SCANNING SECTION [illegible] a separate, visual [illegible] of the input channel being measured. [illegible] is extremely useful [illegible] setting up the Data Logger and advancing manually to a selected channel for visual monitoring.

In scanning multiple analog inputs to the measurement section, the scanning section provides three basic modes of operation. A MANUAL MODE is required for checking each input at the time the analog signals are initially connected. Once the Data Logger is recording data, it may be desirable to return to the manual mode for monitoring a single point where unexpected conditions are occurring. The manual mode is totally manual with no printout unless specifically commanded to print. Most often used is the ONE CYCLE MODE, in which all points are scanned, measured and recorded, sequentially, at periodic intervals determined by the clock section, or by external command. This mode is particularly useful where parameter changes are relatively slow and constant recording is not required. The one cycle mode is controlled both by front panel and remote start/stop command. For applications where constant monitoring is desirable, A CONTINUOUS MODE is available. Once placed in this mode, the Data Logger will repeatedly measure and record all inputs until removed from this mode. The DigiTec Data Logger has a basic scanner input capability of 20 points, which has proven to be sufficient for most applications. However, those situations requiring above 20 inputs can be satisfied by the addition of the DigiTec model 637 scanner slave frame which expands the scanning capability to 200 points.

Another very useful feature of the scanning section is ability to activate and deactivate input points by front panel control. This control is in the form of pushbutton switches, one for each point. An example of the usefulness of this feature is in a thermocouple measuring system wherein one of the inputs has opened, a common occurrence. By deactivating this point, the Data Logger will continue to record and simply skip this input to the scanning section, therefore eliminating erroneous data recording.

MANUAL PRINTOUT CONTROLS

A 'Print' pushbutton allows for printing data, from the input point being monitored, on a manual demand basis.

A 'Paper Feed' pushbutton allows for spacing between printouts or blocks of printouts on a manual demand basis.

A 'Paper Out' indicator lamp illuminates when the paper supply to the printout section is too low. When this lamp is illuminated, all print commands are converted to paper advance commands, thereby avoiding damage to the print drum.

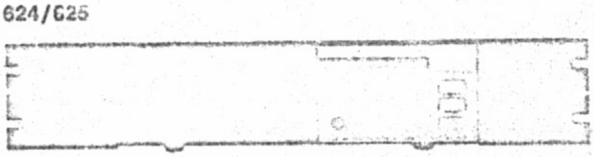
PUNCHED PAPER TAPE OUTPUT

Many applications require a computer compatible output in addition to the hard copy printout from the Data Logger. DigiTec offers the Model 672 Tape Punch and Models 624 and 625 Tape Punch Controllers to provide this output. The Model 624 provides an IBM odd parity code and the Model 625 provides ASCII coded outputs.

The controllers accept the BCD output from the rear connector of the Data Logger, code, serialize and drive the punch magnets of the Model 672 Tape Punch. The interface to the controllers is such that the printout and punching functions are completely interlocked.

The format and word length of the controllers are completely programmable to satisfy a wide variety of applications. Typical cost for the tape punch option is under $2000. Contact the factory or your nearest DigiTec representative for a quotation on your specific requirements.

624/625



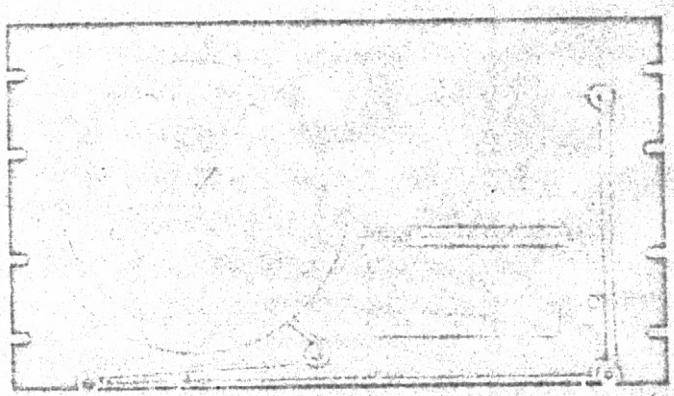


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Figure 17 (Continued) Specifications for the 1268 Data Logger.

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Data Logger	Instrument	Type Measurement
Channel 3	Eppley	Direct Normal
Channel 4	FBOR-1N	Total (clear)
Channel 5	FBOR-2N	Total Thru - OG-2 Filter
Channel 6	FBOR-3N	Total Thru - RG-1 Filter
Channel 7	FBOR-4N	Total Thur - RG-8 Filter
Channel 16	FBOR-4S	Diffuse Thru - RG-8 Filter
Channel 14	FBOR-2S	Diffuse Thru - OG-1 Filter
Channel 15	FBOR-3S	Diffuse Thru - RG-1 Filter
Channel 13	FBOR-1S	Diffuse (clear)
*Channel 17	MBOR	Total, Diffuse, and Direct Analog

* Not scanned for digital reading - used to set zero and check gain only.

NOTE: Due to instrument malfuncitons on this particular data logger, channels 0-2, 8, 9, 10-12, 18, and 19 cannot be scanned. For this reason, channels 3-7, and 13-16 were used for data recording.

Table 2 Data Logger Channels

3 Calibrations

The calibration procedure is based on the use of secondary standards that are traceable to the National Bureau of Standards. An Eppley Pyrheliometer is used as one substandard. This instrument is identical to the instruments in use by the National Weather Service. Three calibrations were performed on this instrument. First, the pyrheliometer was sent to Eppley for calibration against their traceable standards. The method used by Eppley is a comparison of the subject instrument and a group of reference instruments using the sun as a source. These calibrations are standardized in accord with the International Pyrheliometric Scale of 1956.

After return of the instrument, it was compared to a second pyrheliometer in current use at the Institute of Atmospheric Physics, University of Arizona. The unit was then compared again to a calibrated Eppley Thermal Pile Detector, using a calibrated Optronics Laboratory - one solar constant standard lamp as the source. These three separate calibrations were in agreement to within 2%, independent of the source used. In the latter case, care was exercised in compensating for differences in transmission of the instrument windows for the different source spectral distributions.

To calibrate the MBOR and FBOR, direct comparisons were made between the Eppley Pyrheliometer and the other instruments. Each instrument was oriented perpendicular to the

standard source, and alternate readings taken of the normal flux with each instrument at the same axial point with respect to the face of the standard lamp.

These calibrations were then repeated using the sun as the source with agreement to less than 1.5%. These calibrations are checked once each month by in-situ measurements of the normal flux with all three instruments. The MBOR and the FBOR are dismounted and aligned perpendicular to the sun and the direct normal flux is computed by differencing the total reading and the diffuse reading for each instrument. In each case the occulting bar is used to shade the detector for the diffuse measurement. The data obtained in this way is compensated for possible errors in the diffuse flux due to the presence of the bar in the field of view.

Other calibrations performed for the two instruments included relative angular response, linearity, gain drift, and zero drift. The results of the angular measurements are shown in Figure 18. The measurements indicate a departure from a perfect cosine response of less than 2.8% at large angles. The linearity of the instruments was also found to hold over 3 decades within the limits expected for the detectors used. Tests were also performed to evaluate the temperature stability of the detectors. The net change in signal level for a constant illumination was less than 1% up to 250^{o}F. The gain drift of the amplifiers was measured

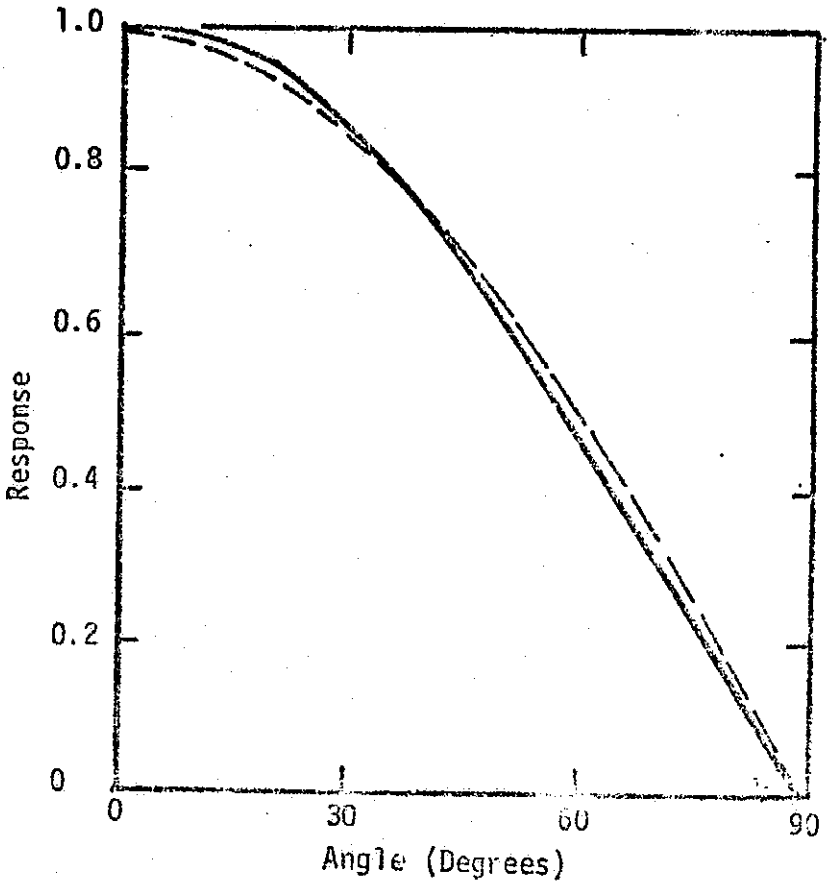

Figure 18 Angular Response of Occulting Bar Radiometer

________ Relative Radiometer Response

- - - - - - - Cosine

using the constant current source discussed above with the resulting error of $\leq$ 0.8% over a two month unattended period. The zero drift was also found to contribute less than 0.43% error when adjustments are done daily. Over a one month unattended period, the zero drift was as much as 2.5%. The published reading and digitizing errors for the data logger are both 0.02%. On the other hand, the recording error for the Brown Electronic Recorder is approximately 1.0% of full scale due to tracking errors and line width uncertainty in reading the records.

In summary, the instruments were found to be stable, easily maintained, and reliable. The principle errors in the measurements are small and attributable to three sources: 1) the calibration uncertainty of 2%, 2) the zero drift in both the MBOR and the FBOR circuits of approximately 2.5% for unattended operation, and 3) the 1% reading accuracy of the recorder for the MBOR. All other errors are negligible.

In the total operating period of six months, only 7 days of data have been lost due to poor data quality or instrument malfunction . This means reliable data has been obtained 97% of the time. In fact, the only contributions to the 3% data loss were due to recorder or data logger malfunctions such as paper runout, pen failure, or power failure on the data logger. The only required maintenance on the instruments and their circuits has been the daily

cleaning of the optics, alignment of the occulting bar, and zero setting if necessary. The long term zero drift problem can be reduced by use of the more expensive precision amplifiers, if the instruments are to be used for unattended operation.

4 Data Analysis

The data analysis task is to translate the observations into the specific quantities useful for solar flux utilization studies. Below we discuss the several forms of data, data reduction methods, and analysis of the data.

4.1 Definitions of Observed and Calculated Quantities

We perform three basic measurements of the solar irradiance. First, the direct normal flux is determined from the Eppley Pyrheliometer. The direct normal flux is, therefore, the radiation passing through a unit area oriented normal to the sun and limited in angular response to a cone with a full angle of approximately 5°. This instrument, therefore, measures only the unscattered component of the flux with a small amount of forward scattered radiation from the circumsolar disk. During the day and year, the direct normal flux is diminished by only the atmospheric transmission. Under cloudless conditions, the approximate expression for the flux would hold:

$$\Phi_{DN} \approx \Phi_o e^{-B/\cos z} \qquad (1)$$

where Φ is the extraterrestrial flux or solar constant, B is an atmospheric attennation constant, and z is the zenith angle. This expression varies only slowly with small zenith angles, a 20% change in flux occurring between zenith angles of 0° to 75°. Thus, for a clear day, the direct normal flux is nearly constant except at sunrise and sunset, and the midday flux values change little during the year. This is readily observed since the sun always appears bright on clear days winter and summer.

The second measurement we perform is the total horizontal flux. This is the radiation passing through a unit area with a fixed orientation normal to the zenith direction on the earth. The detector senses radiation from the entire hemisphere above the detector. Thus, in addition to the direct flux, the scattered flux from the sky and clouds is measured. The direct flux component is that measured by the Eppley Pyrheliometer, except that it is diminished by the cosine of the zenith angle owing to the geometrical change in effective area. Thus, one can compute the zenith angle dependence by multiplying the direct normal flux Eq.(1), by the cosine of the zenith angle and adding the scattered radiation. The desired variations of the total horizontal flux on a clear day thus resembles a cosine function, and the diurnal maximum flux changes throughout the year. In the summer, when the zenith angle at noon is small, the flux is a maximum and in the

winter falls to a minimum value as the zenith angle becomes large.

The third measurement we perform is the scattered horizontal flux. This is defined as the flux from the sky and clouds measured by a horizontal detector in which the solar disk is obscured from view. The scattered horizontal flux is thus a measure of the brightness of the sky. On a clear day, this is nearly a constant function sunce the Rayleigh scattering is, to a first approximation, isotropic. At large zenith angles, the scattered flux falls since the irradiance of the atmosphere falls.

Coupled with these basic measurements, filters are used to determine the approximate spectral dependence of the total horizontal flux and scattered horizontal flux. These two quantities are measured using colored glass filters.

The observed quantities are measured as voltages at particular times. We convert these voltages to flux units by multiplying by the calibration factors. The units used for the flux are given in watts/meter^2. Two other sets of units are commonly used. The conversion factors are given below:

To Convert from:	To:	Multiply by:
Watts/m^2	Btu/ft^2/hr	0.317
Watts/m^2	Langleys/min (cal/cm^2-min)	1.434×10^{-3}

Typically, the maximum direct normal flux on the earth is of

the order of 1000 W/m^2 or 300 Btu/ft^{2}hr, or 1.4 langleys/min.

The next important quantity we measure is the energy available in a certain period of time. The energy determination is done by numerical integration over the appropriate period of time. The data are presented in terms of watt-hours/m^2, rather than Joules/m^2 to allow a more direct comparison with the flux measurements since a flux of 1000 w/m^2 falling for one hour produces an energy equivalent to 1000 w-hrs/m^2, rather than 3.6 x 10^6 Joules/m^2.

4.2 Data Reduction Methods

The measured data are operated on twice. First, the raw voltages are converted to flux units and second, the numerical integration and averages are computed.

The raw data are available in the form of serial punched paper tape in ASC II Code. Each voltage has an associated channel indentification code followed by the sign and five digits (4½) for the voltage and a 1 digit exponent code. The first punch in the data string is a four-digit code representing the hours and minutes at the start of the scan. Occassionally, unrecognizable characters are included in the string and channels are missing due to momentary equipment malfunction.

The procedure we have developed is to first make a file containing all of the requested data. These data are scanned and converted to voltages. Missing data are identified by a -99 code. In addition, the day, end, and

start are identified by the change in hours shown by the reset clock. The interactive mode is used to allow an operator to recognize bad data in a string or other malfunction of the equipment. The net result of the processing at this point is to divide a file containing several days of data into several files each containing one day of data. The program listing is given in Appendix A-1.

The operator may, at this point, enter the files to correct data or delete duplicate lines. Generally, this has been found to be unnecessary. On several occasions, it was necessary to correct the timer. No additive changes were made to the data.

The next phase of the data reduction is to enter the calibration factors and perform the averaging operations. First, the data are further screened for missing data, wrong times, etc. The interactive mode is used to allow operator decisions to decide whether or not to include the first and last lines of data and intervening lines with missing data. Once the data were accepted by the operator, the processing followed without intervention.

The data are presented in four forms. First, the flux for each channel is computed and tabulated. It is important to note that the values presented are an instantaneous value as opposed to an integrated value. This is important because the values show the degree of variability more accurately than integrated values. Since the input data

are scanned sequentially, there is a possibility that the correlations between measurements may be inaccurate since the first and last measurements are separated in time by about 10 seconds. This is more of a problem on partly cloudy days when the flux changes rapidly in the measurement interval.

The second level of data reduction is to perform the integrals to produce values of the energy at hourly intervals and the daily total. This format is more typical for presentation of results and reduces the volume of data significantly. Since readings are taken at 10 minute intervals, the integral is given by

$$E_j = \sum_{6} \Phi_j/6$$

where Φ_j are the flux measurements for the j th instrument. E_j is, therefore, in units of watt-hrs/m².

The third level of data reduction involves channel-to-channel comparisons of the hourly integrals. First, we calculate the percentage of total energy which is scattered. This is given by

$$F_{scat} = \frac{E_{SH}}{E_{TH}} \times 100$$

where E_{SH} and E_{TH} are the scattered and total energy computed for the hour respectively. Next, we calculate the amount of energy in each spectral band as a fraction of the total, by

computing the ratios of the filtered to unfiltered channels for both the total energy and the direct component of the total energy. The direct horizontal components are found by substracting the scattered horizontal from the total horizontal components.

Finally, we compute the cumulative energy available above a parametric flux level. That is,

$$E(\Phi) = \sum_{\phi \geq \Phi} \phi \Delta t$$

where ϕ is an individual flux measurement for the time interval Δt, and is a variable ranging from zero to 1000 watts/m^2. The listing for this computer routine is presented in Appendix A-2.

4.3 Analysis of Data

In this section, we present a general analysis of the data, examples of the data, and interpretation of the results. Listings of the detailed data in tabular form are presented in Appendix A-3.

First, we discuss the data measured by the MBOR instrument. These data are given by quasi-continuous records of the total horizontal and scattered horizontal flux. Figure 19 shows a detailed record for a partly cloudy day. The top and bottom curves give the total horizontal and scattered horizontal flux respectively. The length of the line caused by the motion of the shadow bar

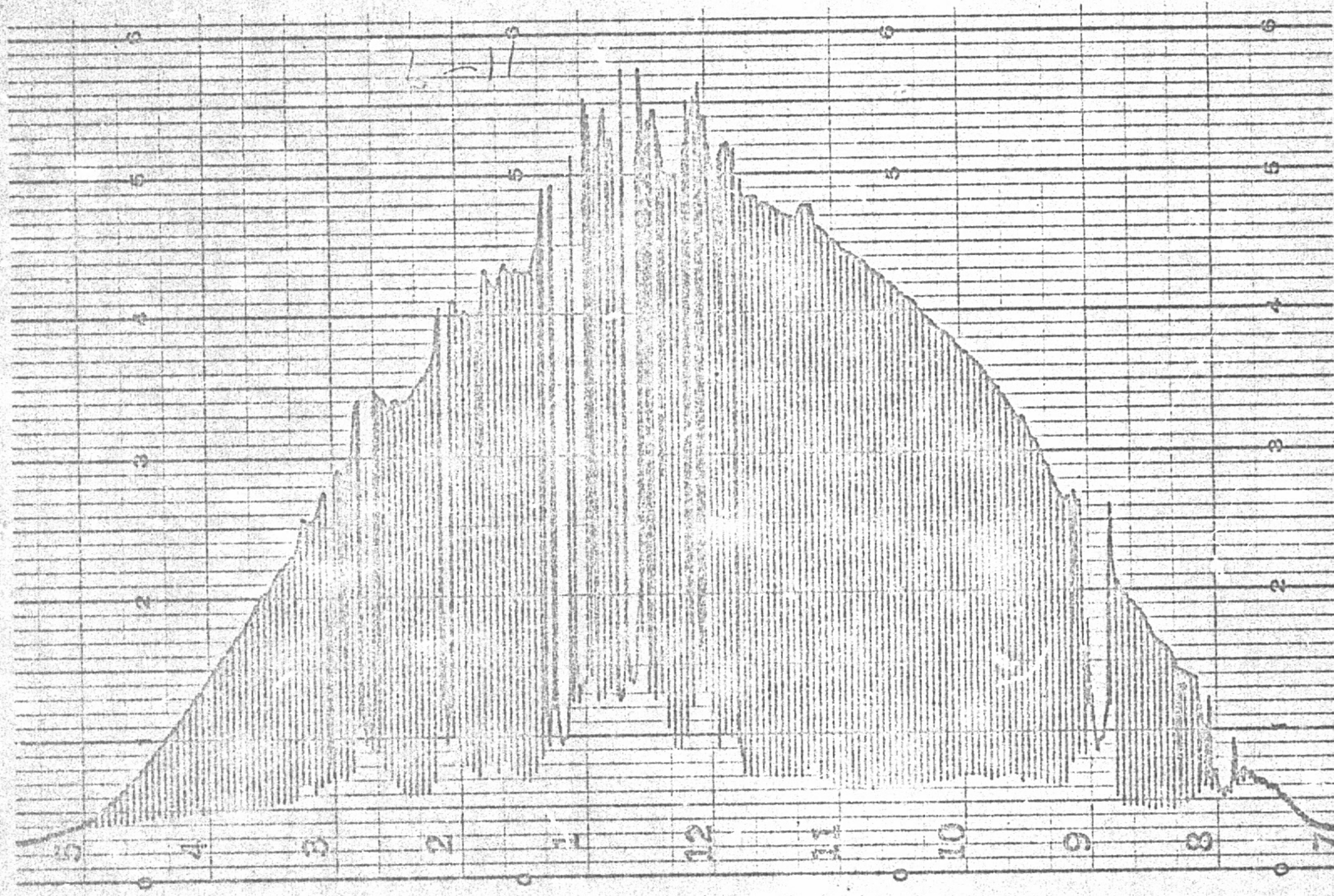

Figure 19 A sample of the MBOR flux data for a partly cloudy day. Time increases from right to left.

is proportional to the direct flux on a horizontal surface.

We have found these records to be most useful for identifying clear, partly cloudy, and cloudy periods. In addition, they provide a clear indication of the variability of the flux as a function of time. We have also found it helpful and instructive to assemble the charts to make a calendar so that trends and sequences can be observed on a day-to-day basis.

We have done little numerical analysis of the records, however. Human reading errors and time involved in digitizing the data make such analysis difficult. The accuracy of the measurements and correlation with the data recorded digitally has been found through several spot checks to be within about 5% or less.

The monthly records for the period of July through October are presented in Appendix A-3. Climatological data for these months are shown in Table 3, where one can see that there was about 40% more rain than usual and 15% more clouds which decreased the percentage of possible sunshine by 2%. Generally speaking, it was not an atypical period from a climatological point of view.

Reviewing the monthly records of the solar flux, it is somewhat surprising to note the large number of days with significant cloud cover. One is generally prejudiced by the tourist promotions that advertise exceptional weather

in this area. On this basis, one might expect to observe much more clear weather than is shown. Although it it true that these months are the "traditional rainy season", the records still show more cloudiness than one would expect. One is also prejudiced by long term averages that show this area as one with significant sun and clear skies. It is important to compare the averages with the detailed records, however, to be able to obtain even a qualitative "feel" for the meaning of the statistics. Reviewing the month of August, for example, there is a large amount of sunshine available as shown by the shaded area in the records. But, the percent of possible sunshine average for the month shows that it was "clear" 92% of the time. Although the detailed records bear this out, the inadequacy of a single number and the nature of the measurement of the percent possible sunshine is obvious.

TABLE 3 Climatological Records for Tucson, Arizona

Month	Rainfall (in)		% Possible Sun		Sunrise-Sunset Sky Cover	
	1974	Avg.	1974	Avg.	1974	Avg.
July	4.44	2.38	84	77	5.9	5.2
August	1.04	2.34	92	80	2.8	4.6
Sept.	1.69	1.37	81	87	4.0	2.8
Oct.	2.12	0.66	68	89	4.7	2.7
Cum. Avg.	2.32	1.69	81	83	4.4	3.8
% Departure	+37		-2		+16	

It is also obvious from these data that it would be impossible to provide a detailed record of this nature from space. First, it would be operationally difficult to produce this quantity of detailed data. Second, many of the strongly time-dependent phenomena arise from small clouds and changes in cloud depth. Reproduction of these records would require high resolution equipment that is not generally feasible for meteorological applications. Finally, we do not have sufficient data to correlate the down-welling flux to the albedo to allow data reduction with sufficient accuracy. Optical imagery from space is well suited for determining cloud-cover trends over large areas; a task beyond the reach of most terrestrial instrumentation and measurement programs.

Let us now review the detailed numerical results. A limited amount of data are presented here because of equipment malfunctions and delay in having defective equipment repaired and replaced. The data presented are representative of a small cross-section. Additional data will be presented in reports of a subsequent research study.

First, we consider the detailed flux records presented in Appendix A-3. These records produce the detailed numerical results at ten-minute intervals. The gross features discussed above are reproduced in the numerical records. The

The rapid changes of several orders of magnitude in any flux measurement over a ten-minute interval can be seen by scanning the data. Two other features of the data should be noted here. First, it is common to observe small fluctuations in the flux throughout the day, even on clear days. This phenomenon may be due to small changes in the depth or density of the atmosphere that change the atmospheric transmittance by about 10% at the most, but more typically, less than about 2%. The phenomenon is nearly periodic. Since this is observed in all of the instruments, we can rule out the possibility that it is related to instrumental tracking errors or sway in the instrument tower. The second feature we wish to note from these data is that near sunrise and sunset, the absolute accuracy of the measurements becomes low, resulting in descrepancies in the data such as reading more scattered flux than total flux. It should be kept in mind that the accuracy limit is approximately $\pm$ 7 Watts/m^2.

Next, we proceed to the hourly energy tables in Appendix A-3. Here again, we observe the effect of integration and averaging of data on loss of resolution. From an engineering point of view, the temporal variations can be extremely important to solar energy applications. Presentation of integrated or averaged measurements has been common practice in the past and can be misleading if not properly interpreted. They serve a definite value in allowing an individual to

consolidate large amounts of data for better recognition.

To illustrate some of the features of the averaged data, we present several examples of averaged data for comparison with expected results. First, in Figure 20, we show average hourly flux for the days with complete data in August. This graph corresponds to the output of the MBOR instrument. First, we note that the average is far more regular than the actual data. If one were asked to roughly sketch a "typical day", without necessarily following strict mathematical rules, he would probably include some of the large fluctuations in the afternoon. From Figure 20, one can see that this should be done since the scattered flux reaches a maximum at 15 hours.

The next level of data consolidation is the daily or monthly total energy. Naturally, we loose more information in this consolidation. It is of interest, however, to compare the daily total energy with other climatological data. The percentage of possible sunshine is measured with an instrument that counts the number of hours that the solar disk is visible. When we compare the number of hours that the direct normal flux is greater than 100 w/m^2, we obtain the same results. When we plot the daily total direct normal energy against the percent of possible sunshine, we obtain the results shown in Figure 21. One might expect a linear relationship between the two quantities. From the limited data here, however, one would expect no direct flux for less than about

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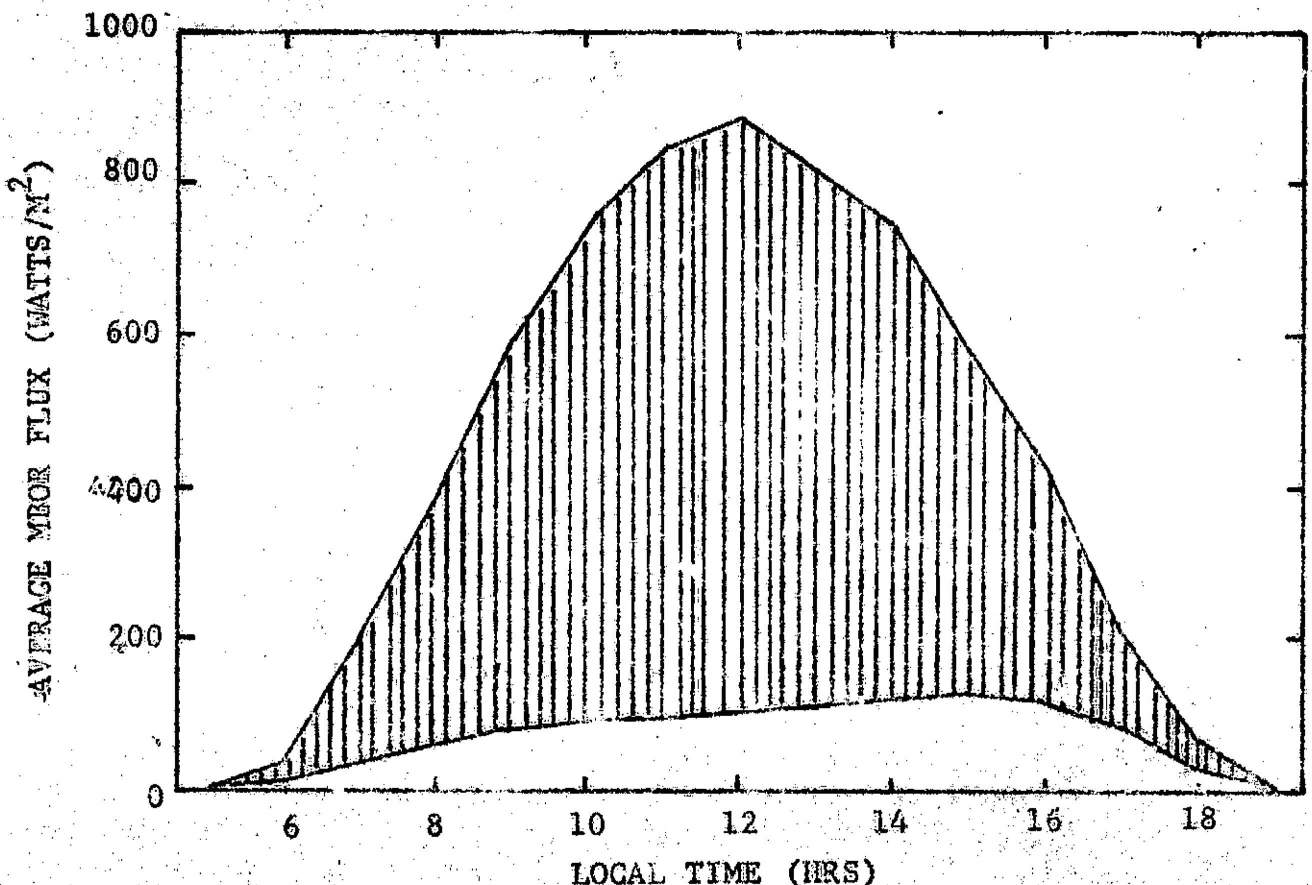

Figure 20 The Hourly Average Flux. August 1974

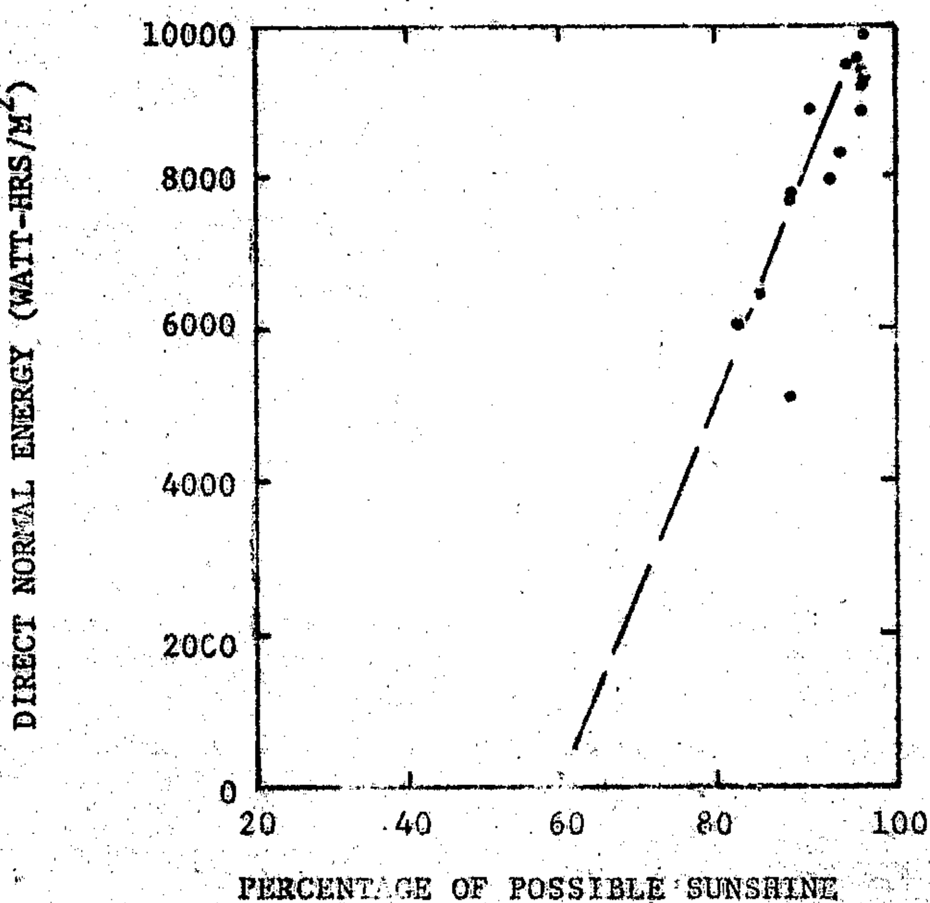

Figure 21 A Comparison between the direct normal energy and the percentage of possible sunshine

absorbing surfaces are available for the ultraviolet through the far infrared, thermal devices are usable at almost all wavelengths. Thermistors are among the more expensive devices considered. They are also limited in their operating temperature range and often require cooling. Pyroelectrics, on the other hand, can operate at temperatures up to the curie point of the pyroelectric material which is usually about 50-70°C. These detectors also have a flat spectral response, but require chopped input light signal for proper operation. Of the thermal detectors, the simplest is the thermal pile. This detector can operate without chopping and at temperatures up to 125°C, and is frequently used for solar measurements. The use of such a detector, however, requires care to exclude unwanted infrared radiation from surfaces around the detector. The flat spectral response is a highly desirable characteristic.

Silicon photodiodes were selected as a first choice for our application because of their numerous advantages. The lack of a flat spectral response is easily correctable and not judged to be a serious disadvantage. The United Detector Technology 3DP pin photodiode was selected as the primary detector after comparative testing of other similar detectors. Silicon photodiodes of this type have become more widely used with the development of improved output electronics. Recent articles[1,2,3] discuss the equivalence of silicon photodiodes, combined with an operational amplifier (op-amp) output circuit to photomultipliers. This diode/op-amp combination gives a linear

60% possible sunshine. It is obvious that since the total energy depends both on when the cloudy period occurs and on the nature of thin clouds, the percentage of possible sunshine should be regarded as only an approximate measure of solar energy.

Next, we compare in a similar manner, the average cloud cover with the scattered energy. We observe that the scattered flux increases in the presence of clouds. The sunrise to sunet cover index is meant to provide cloudiness data. This data is an estimate made by the meteorologist of the amount of cloud cover determined visually to the nearest tenth of the sky. Although based on qualitative observations, it is an amazingly good index. We plot the results in Figure 22, where the spread in the data can easily be seen. As in the case of the percentage of possible sunshine, we would expect that the correlation would be low since the measurements are not exactly similar. That the sky-cover index is as good as it appears is somewhat remarkable.

There have been a number of studies that try to relate direct, scattered, and total solar energy. During this study, we have learned that this is nearly an impossible task on a short-time base. There are an infinite number of possible cloud locations, thicknesses, sun angles, etc., that can alter the measured parameters. An example of such a study is that by Liu and Jordan[4] where they have analyzed solar energy measurements from several locations to determine average

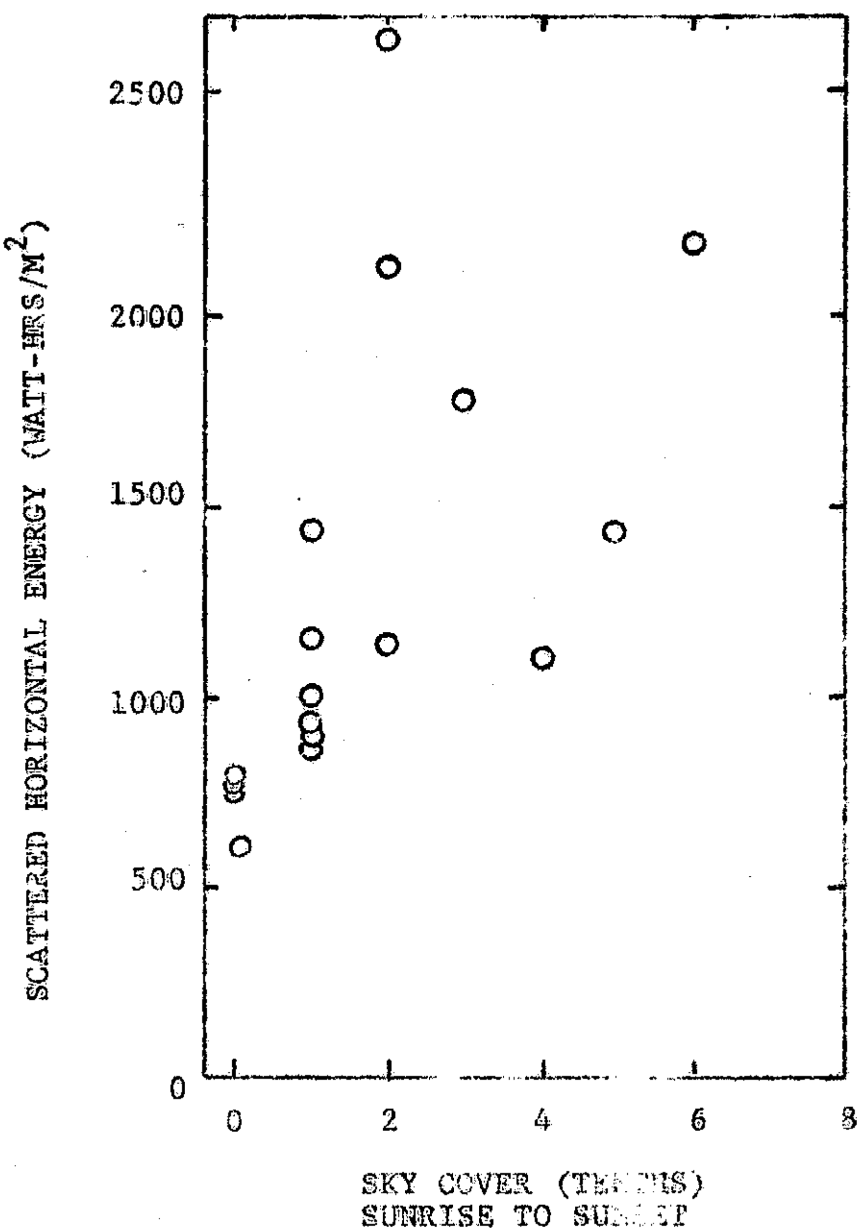

Figure 2[illegible]. A comparison between scattered energy and sky cover.

transmission factors and average ratios for the solar flux. We have found that these factors hold well for clear days and for an average of a large number of cloudy days, but in general, they do not describe even the daily total energy.

It is of considerable interest and importance to be able to specify the fraction of the total energy which is scattered. The amount of scattered energy depends both on the presence of clouds and the position of the sun in the sky. On clear days the scattered flux is generally less than 100 w/m^2. At sunrise and sunset, nearly all of the flux is from the sky overhead. Thus, on a clear day, the scattered flux is minimim near midday and represents less than 10% of the energy. The fraction rises to the limit of 100% at the beginning and end of the day. When averaged over the entire day, the scattered flux is about 10% of the total on clear days and increases to nearly 100% on overcast days.

We have used our data to estimate the fraction of energy lost in the direct beam which is scattered back into space, increasing the albedo. On partly cloudy days, the fraction is equally divided. On heavy overcast days, about 25% reaches the earth.

The spectral distribution of the energy is of interest also. In this study, we use three filters to determine the spectral distribution. These filters transmit the light longer than .53, .61, and .70μm. For an air mass of 2, we

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would expect that the three bands would give 79.5%, 66.8%, and 53% of the total. The average values we observed for all air masses were 71%, 65%, and 59%. The differences can easily be explained by variations in the humidity and turbidity of the atmosphere at various locations.

Probably the most important aspect of solar flux measurements is to describe the quality of the flux in some manner. The final set of tables giving the energy content as a function of the flux level is one method of presenting this information. In Figures 23 and 24 we present a comparison of clear and partly cloudy day information for direct normal and total horizontal cases. The two sets of data are representative of a trend we have noted consistently. The losses in the direct flux on cloudy days are always more significant than the losses in the total horizontal flux in two regards. First, since the flux loss in the direct beam is partially restored by the scattered radiation, the percentage loss in the direct normal energy is less than is the total horizontal case. This can easily be seen as the zero flux intercepts on the graphs. This observation is not too surprising. It is, however, somewhat surprising to find that the maximum total horizontal flux rate is not seriously diminished for partly cloudy conditions, but is for the direct flux. The effect of clouds on the total flux is smaller than we had originally thought.

One problem still remains unsolved. The amount of data

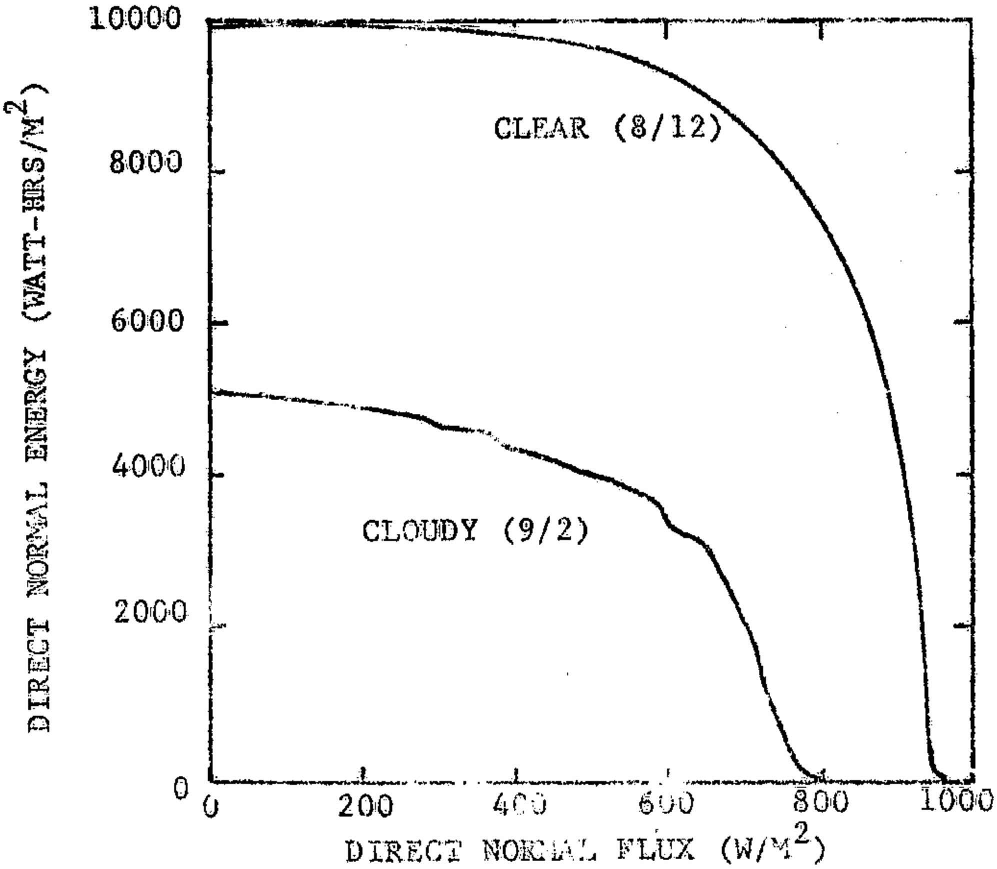

Figure 23 Direct normal energy as a function of flux

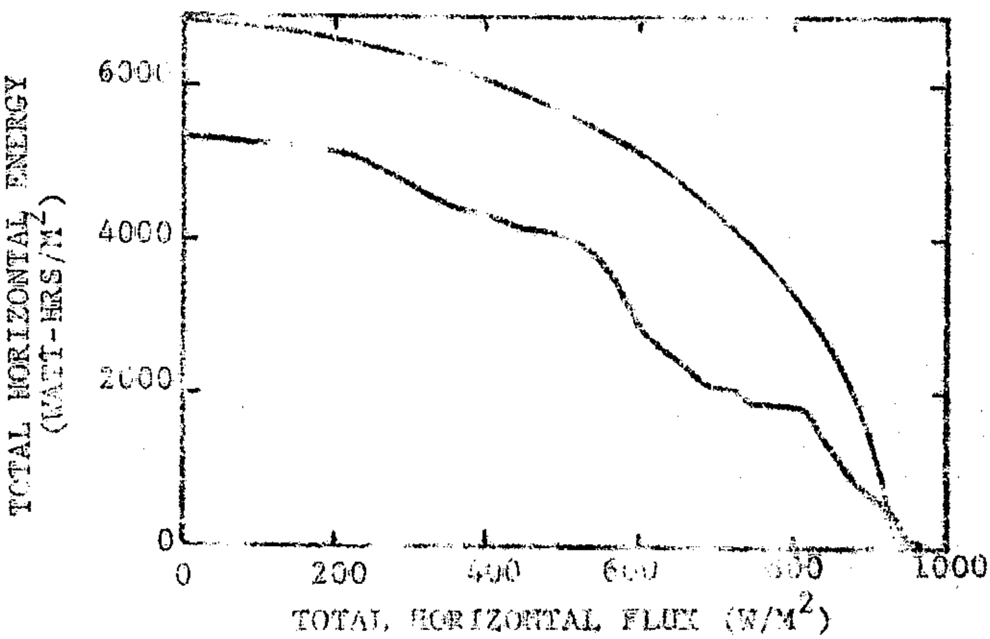

Figure 24 Total horizontal energy as a function of flux.

required to fully characterize the flux is much larger than one would ideally like. One of the more promising tools we investigated is the use of Fourier analysis.

The basic principle of the analysis of solar flux using Fourier analysis is that the incident flux $\Phi(t)$ is a function of time that can be transformed to a function of frequency. The numerical processes are well known, detailed theorems being found in most college text books. The flux can be represented as

$$\Phi(t) = \sum^{\infty} \left[A_n \cos(n\pi t/\tau) + B_n \sin(n\pi t/\tau)\right] + A_0/2$$

where A_n and B_n are the Fourier sine and cosine coefficients, and τ is the period. The coefficients are determined from the flux using the Fourier sine and cosine integrals:

$$A_n = 1/\tau \int_{-\tau}^{\tau} \Phi(t) \cos(n\pi t/\tau)\, dt$$

and $$B_n = 1/\tau \int_{-\tau}^{\gamma} \Phi(t) \sin(n\pi t/\tau)\, dt.$$

A preferred expansion, in this case is

$$\Phi(t) = A_0/2 + \Sigma\, C_n \cos(n\pi t/\tau + \gamma_n)$$

where

$$C_n = \sqrt{A_n^2 + B_n^2}$$

and

$$\gamma_n = \arctan(A_n/B_n).$$

Here, we speak of the coefficients A_0 and C_n as being the frequency spectrum of the flux. The larger the value of one of the coefficients, the more energy there is in the flux that can be characterized by that frequency. The frequency is give by n/γ.

The Fourier coefficients for the two days are compared in Figure 25, where the discrete points have been joined for the reader's convenience. Two features are readily observed. First, since the form of the clear day data is not a pure sinusoidal function, there are higher frequency components that make up the Fourier series. The cloudy day data shows that there is considerably more energy at the higher frequencies, as one would expect. It is interesting to note that in the data we have reviewed to date, that the spectra for similar weather conditions are remarkably similar, even though the flux traces are somewhat dissimilar. Apparently there are characteristic frequencies in the solar insolation.

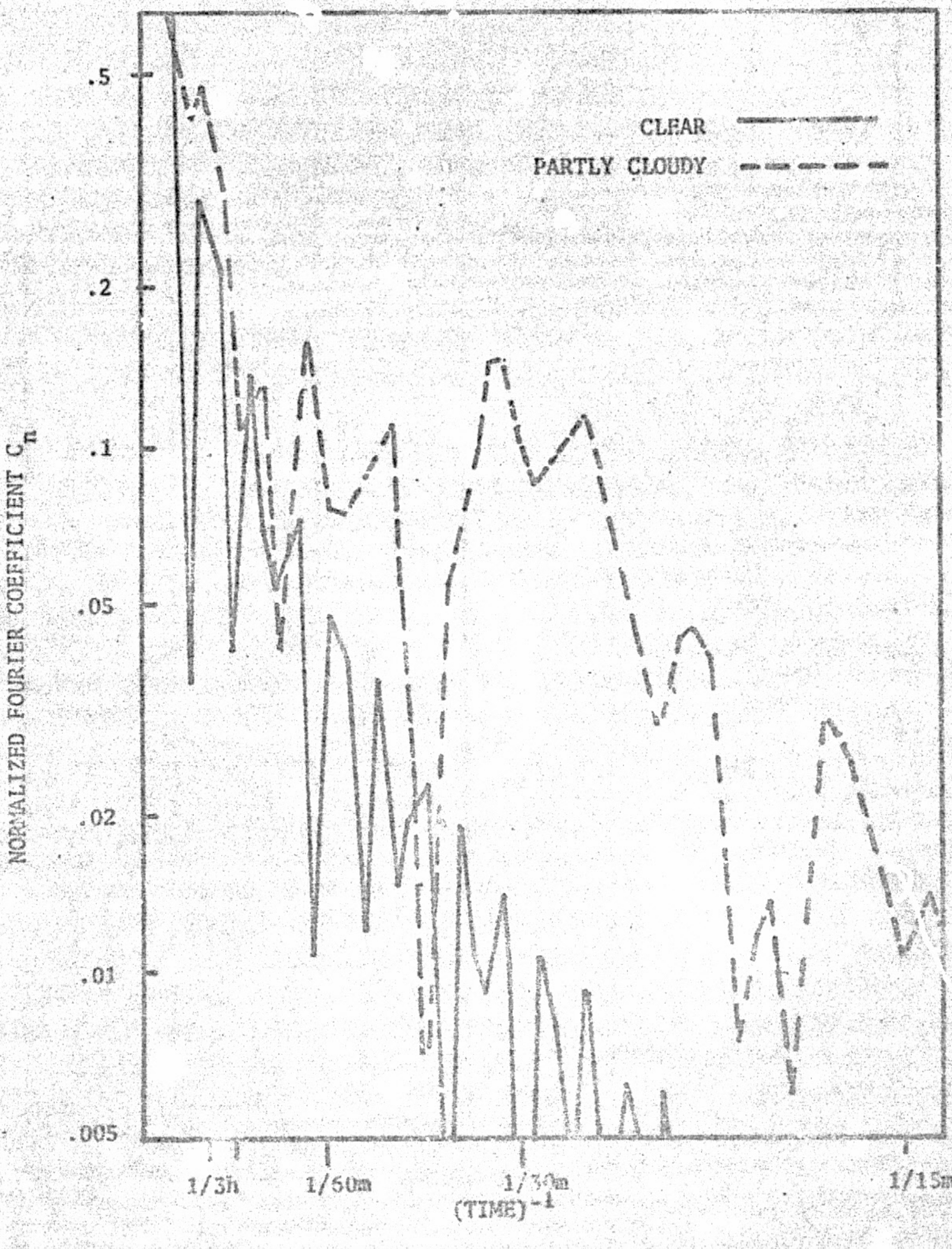

Figure 25. The Fourier Spectra for clear and partly cloudy days.

III CONCLUSIONS AND RECOMMENDATIONS for FURTHER RESEARCH

The instruments developed proved to be well-suited for making the measurements of the solar flux. They were able to discriminate between the direct and scattered radiation. The data showed the expected general features with regard to relationships between scattered, direct, and total flux. The nature of the temporal variations of the flux was a somewhat unexpected result. Also unexpected was the number of days that were cloudy or partly cloudy.

Two recommendations for further work can be made. First, in addition to the temporal characteristics of the flux, it would be of considerable value to be able to define the spatial characteristics such that size and velocity determinations can be made, thereby completing the dimensional aspects of the characterization of the solar radiation. The second recommendation would be to find better means of statistically analyzing the flux measurements such that certain temporal aspects of the flux could be preserved.

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APPENDIX A-1

TAPE READ PROGRAM LISTING

```
DIMENSION X(2),D(10)
REAL NX(10)
ALPHA C(12),A(14),ANS
FILENAME DI,DO
DATA C/"0","1","2","3","4","5","6","7","8","9","-","+"/
DATANX/3.,4.,5.,6.,7.,13.,14.,15.,16.,17./
JS=1
TL=0.
PRINT," INPUT & OUTPUT FILES"
INPUT,DI,DO
1 READ(DI,100,END=99)A
100 FORMAT(18A1)
K=1
X(1)=0.;X(2)=0.
DO 7 I=1,14
DO4J=1,12
IF(A(I).EQ.C(J))GOTO5
4 CONTINUE
GOTO7
5 J=J-1
IF(J.GT.9)GOTO6
X(K)=10.*X(K)+J
GOTO7
6 K=2
S=1.+2.*(10-J)
7 CONTINUE
IF(X(1).LE.20.)GOTO10
IF(JS.EQ.1)GOTO9
DO8I=1,9
IF(D(I).NE.-99.)GOTO15
8 CONTINUE
GOTO9
15 TL=T
WRITE(DO,103)T,(D(I),I=1,9)
103 FORMAT(F6.2,9F7.2)
9 JS=JS+1
N=X(1)/100
X(1)=X(1)-N*100.
T=N/100.
DO11I=1,9
11 D(I)=-99.
IF(T.GE.TL)GOTO10
PRINT," PROCESSING COMPLETE FOR",DO," LENGTH=" ,JS
PRINT," TIME IS",T
PRINT," READ MORE"
INPUT,ANS
IF(ANS.EQ."NO") GO TO 25
PRINT," NEXT FILE"
TL=0.
INPUT,DO
```

```
600 JS=2
610 10 DO13I=1,10
620 IF(X(1).EQ.NX(I))GOTO14
630 13 CONTINUE
640 GOTO1
650 14 D(I)=S*(X(2)-2.)/10000.
660 GOTO1
670 25 PRINT," BALANCE FILENAME"
680 INPUT,DO
690 WRITE(DO,100)A
700 26 READ(DI,100,END=99)A
710 WRITE(DO,100)A
720 GOTO 26
730 99 STOP;END
```

APPENDIX A-2

DATA ANALYSIS PROGRAM LISTING

```
      DIMENSION X(10,85),C(10),R(10,16),XL(10)
      DIMENSION ES(2,50),RA(10,16)
      FILENAME DI
      ALPHA ANS
      DATA C/0.,136.4,97.59,73.8,93.95,62.01,107.07,78.83,65.04,
&          77.83/
1     PRINT," INPUT FILE"
      INPUT,DI
      J=2
2     READ(DI,100,END=8)(X(I,J),I=1,10)
100   FORMAT(F6.2,9F7.3)
      PRINT," FIRST LINE"
      PRINT 100,(X(I,J),I=1,10)
      PRINT," USE / DUMP"
      INPUT,ANS
      IF(ANS.NE."USE")GO TO 2
3     YL=X(1,J)
      J=J+1
4     READ(DI,100,END=8)(X(I,J),I=1,10)
      Z=10.*X(1,J)
      IF(X(1,J).LE.YL)GO TO 6
      Z=AINT(Z)/10.
      IF(Z.LT.X(1,J))GO TO 4
      DO 5 I=2,10
      IF(X(I,J))80,5,5
5     CONTINUE
      GO TO 3
80    PRINT 100,(X(I,J),I=1,10)
      PRINT," USE / DUMP"
      INPUT,ANS
      IF(ANS.NE."USE")GOTO 4
      GO TO 3
6     PRINT," TIME WRONG LINE 2:"
      K=J-1
      PRINT 100,(X(I,K),I=1,10)
      PRINT 100,(X(I,J),I=1,10)
      PRINT," USE / DUMP"
      INPUT,ANS
      IF(ANS.NE."USE")GO TO 4
      PRINT," TIME >",X(1,K)
      INPUT,X(1,J)
      GO TO 3
8     J=J-1
      PRINT," IS LAST LINE"
      PRINT 100,(X(I,J),I=1,10)
      INPUT,ANS
      IF(ANS.EQ."NO")GO TO 8
      JT=J+1
      DO 7 I=2,10
      X(I,1)=0.
```

ORIGINAL PAGE IS
OF POOR QUALITY

```
 7     X(I,JT)=0.
       DO 21 J=1,JT
       YL=X(10,J)
       X(10,J)=X(9,J)
       X(9,J)=X(8,J)
       X(8,J)=X(7,J)
 21    X(7,J)=YL
       N=JT-1
       DO 74 J=2,N
       F=(X(1,J)-INT(X(1,J)))/.6
 74    X(1,J)=INT(X(1,J))+F
       J=2
       TO=X(1,J)-1./6.
       X(1,JT)=X(1,N)+1./6.
 70    J=J+1
       IF(J.GE.JT)GO TO 73
       TJ=TO+(J-1)/6.
       TR=X(1,J)-TJ
       IF(ABS(TR).LT.0.166)GOTO 70
        JT=JT+1
       N=JT-J
       DO 71 K=1,N
       JK=JT-K
       JL=JK+1
       DO 71 I=1,10
 71    X(I,JL)=X(I,JK)
       X(1,J)=TJ
       DO 72 I=2,10
       JK=J+1
       JL=J-1
       X(I,J)=X(I,JL)+(X(I,JK)-X(I,JL))/(6.*(X(1,JK)-X(1,JL)))
       IF(X(I,J).LT.-5.)X(I,J)=-99.
 72    CONTINUE
       GO TO 70
 73    X(1,1)=X(1,2)-1./6.
       DO 9 I=1,15
 9     R(1,I)=4.+I
       DO 25 I=1,2
       DO 25 J=1,50
 25    ES(I,J)=0.
        DO 12 J=1,15
        DO 12 I=2,10
 12     R(I,J)=0.
        DO 17 J=1,JT
        DO 13 I=2,10
        IF(X(I,J).LT.-10.)GO TO 13
        IF(X(I,J).LT.0.)X(I,J)=0.
        X(I,J)=X(I,J)*C(I)
 13     CONTINUE
 22     DO 15 I=2,10
```

```
      IF(X(I,J).LT.0. GO TO 15
      IT=INT(X(1,J))-4
20    R(I,IT)=R(I,IT)+X(I,J)/6.
      IF(I.GT.3)GO TO 15
      LM=50-IFIX(X(I,J))/20
      IF(LM<1)LM=1
      K=I-1
      ES(K,LM)=ES(K,LM)+X(I,J)/6.
15    CONTINUE
17    CONTINUE
      DO 16 I=2,10
      R(I,16)=0.
      DO 16 J=1,15
16    R(I,16)=R(I,16)+R(I,J)
      REWIND DI
      DO 18 J=1,JT
18    WRITE(DI,101)(X(I,J),I=1,10)
101   FORMAT(F6.2,9F7.0)
      DO 19 J=1,16
19    WRITE(DI,101)(R(I,J),I=1,10)
      DO 30 J=1,16
      DO 31 I=1,9
31    XL(I)=0.
      IF(R(3,J).LE.0.)GO TO 33
      XL(1)=100.*R(7,J)/R(3,J)
      DO 32 I=4,6
      L=I-2
32    XL(L)=100.*R(I,J)/R(3,J)
33    YL=R(3,J)-R(7,J)
      IF(YL.LE.0.)GO TO 30
      DO 34 I=5,7
      LL=I+3
      L=I-1
34    XL(I)=100.*(R(L,J)-R(LL,J))/YL
30    WRITE(DI,101)R(1,J),(XL(I),I=1,7)
      DO 40 K=1,2
      DO 40 L=2,50
      LM=L-1
40    ES(K,L)=ES(K,L)+ES(K,LM)
      PRINT," IS THIS FIRST DAY OF MONTH"
      INPUT,ANS
      IF(ANS.EQ."YES")GO TO 52
      REWIND "AVG"
      READ("AVG",104)NT
      DO 50 J=1,16
50    READ("AVG",105)(RA(I,J),I=1,10)
      NT=NT+1
      DO 51 I=2,10
      DO 51 J=1,16
51    RA(I,J)=R(I,J)+RA(I,J)
```

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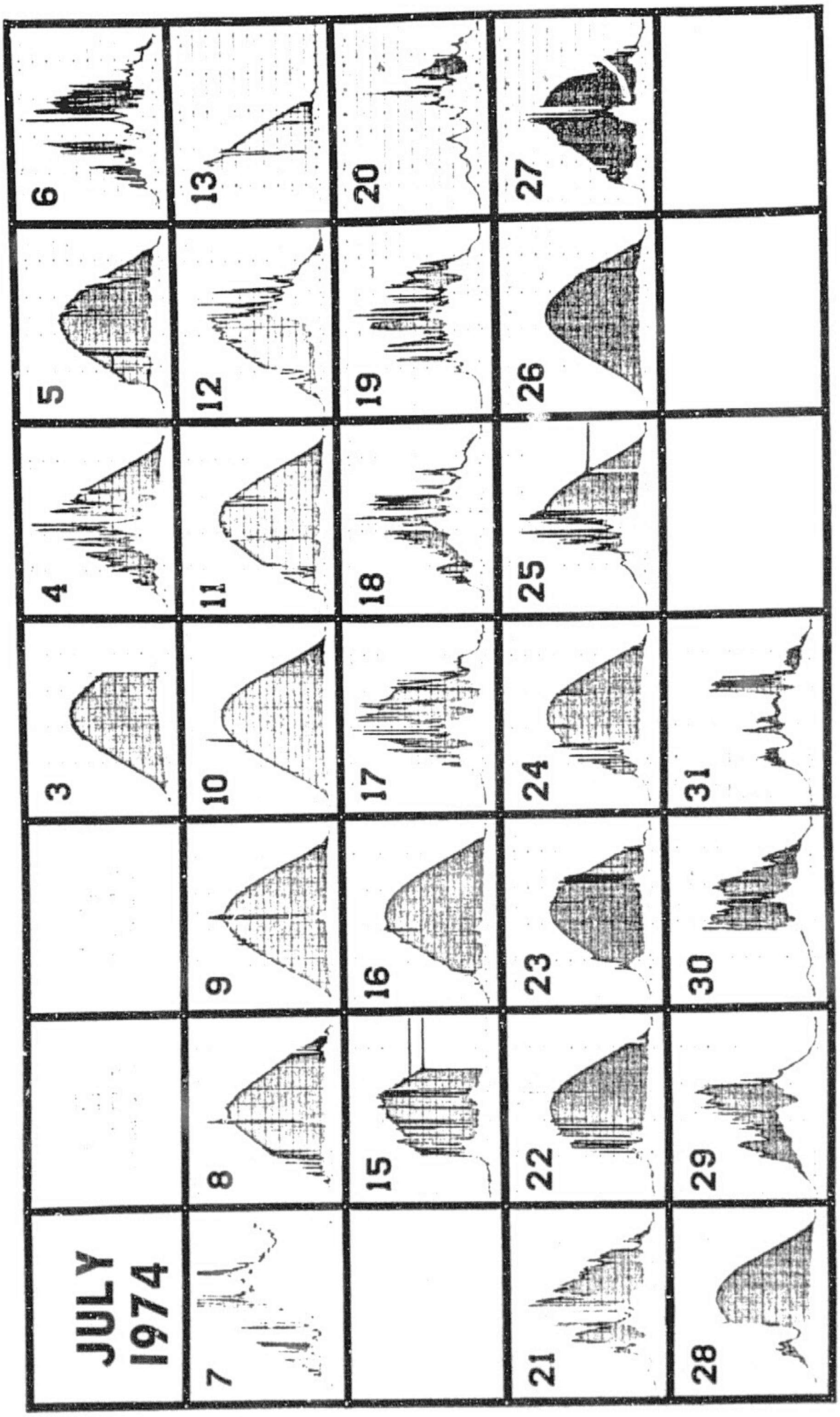
OF POOR QUALITY

```
1600        REWIND "AVG"
1610        GO TO 54
1620 52     NT=1
1630        DO 53 I=1,10
1640        DO 53 J=1,16
1650 53     RA(I,J)=R(I,J)
1660 54     WRITE("AVG",104)NT
1670        DO 55 J=1,16
1680 55     WRITE("AVG",105)(RA(I,J),I=1,10)
1690 104 FORMAT(I4)
1700 105 FORMAT(F5.1,9F7.0)
1710        DO 41 L=1,50
1720        I=(51-L)*20
1730        J=(50-L)*20
1740 41     WRITE(DI,103)I,J,(ES(K,L),K=1,2)
1750 103 FORMAT(2I5,2F7.0)
1760        PRINT," MORE DATA"
1770        INPUT,ANS
1780        IF(ANS.EQ."YES")GO TO 1
1790        STOP;END
```

APPENDIX A-3

DATA

Contents:


JULY
1974
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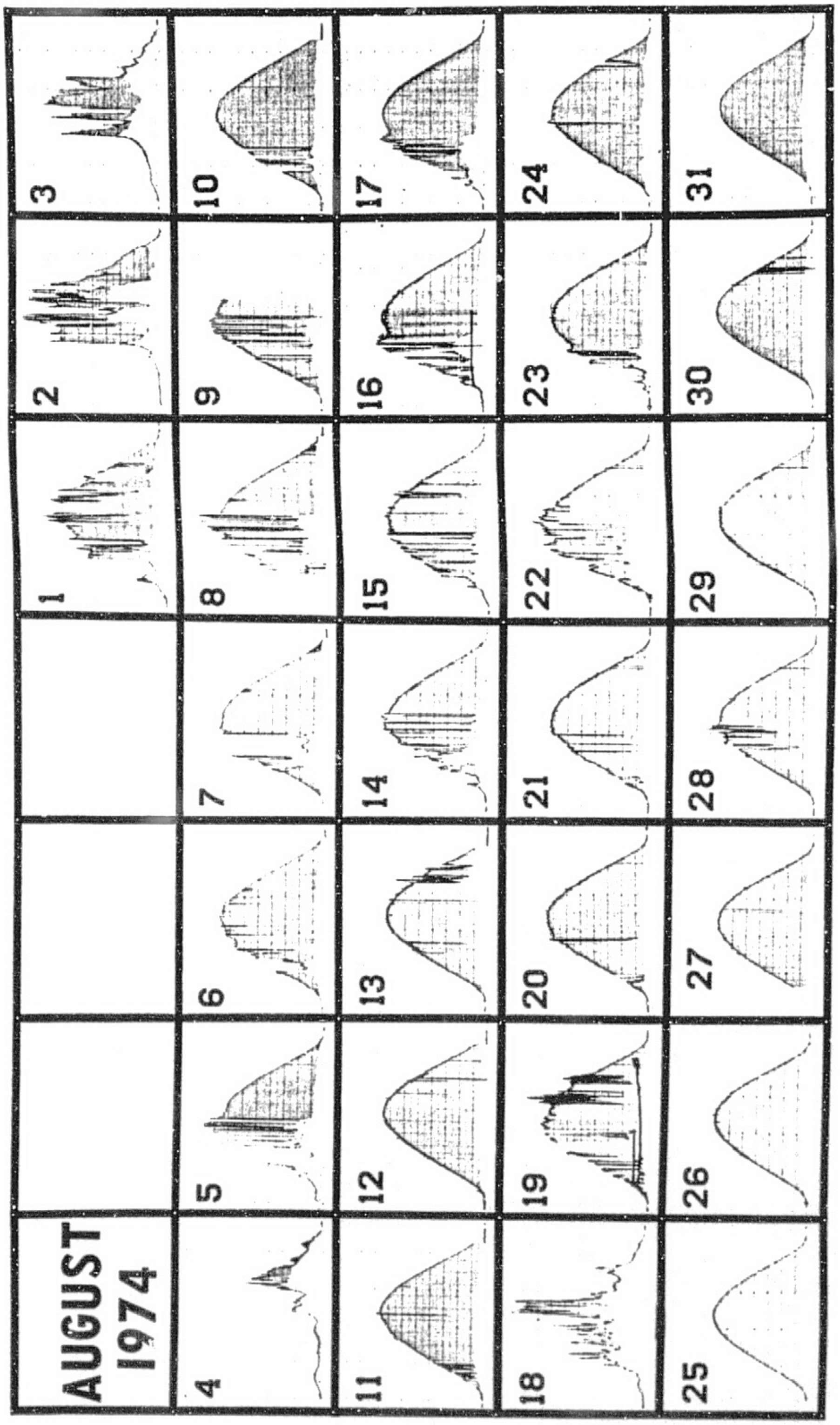
AUGUST 1974
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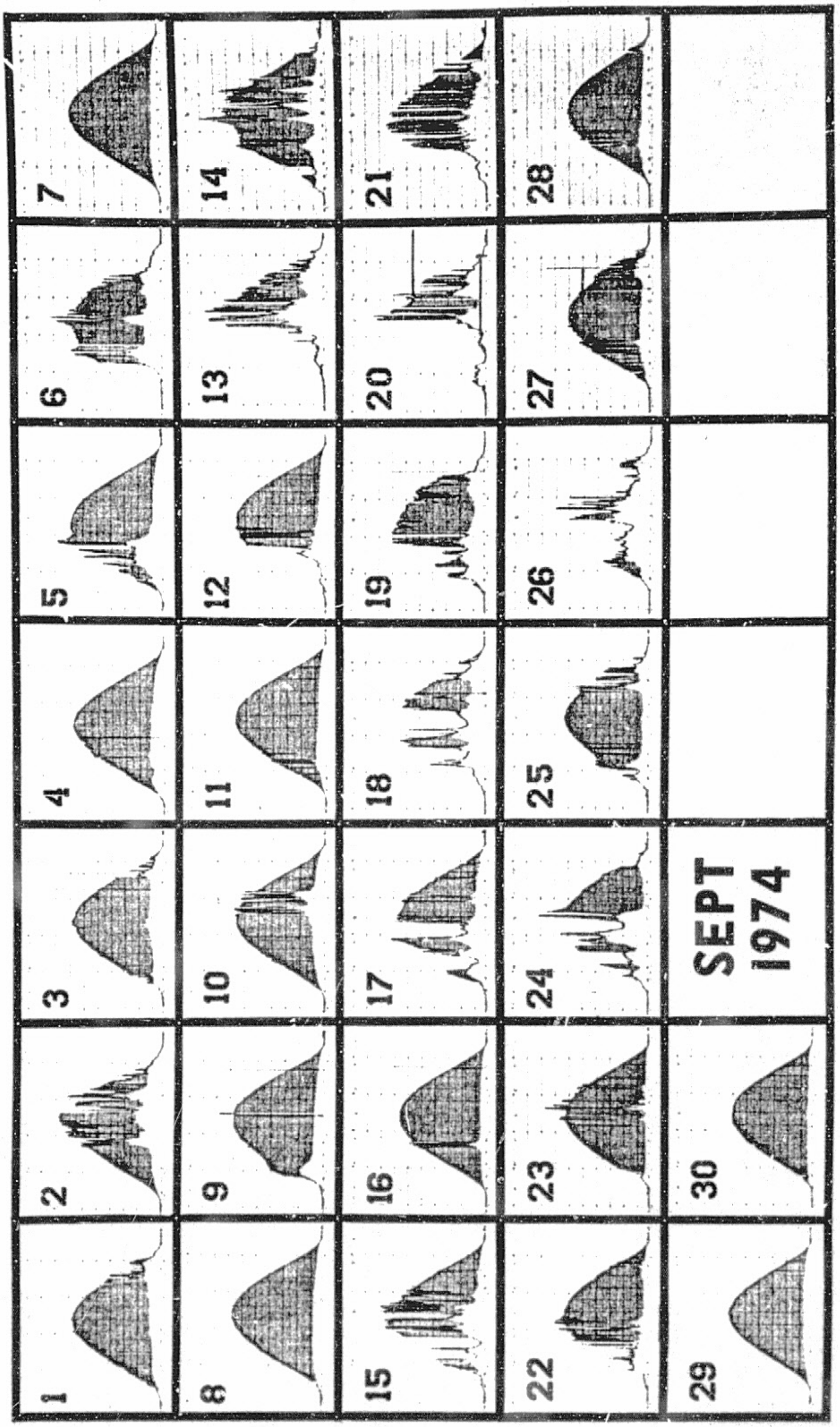
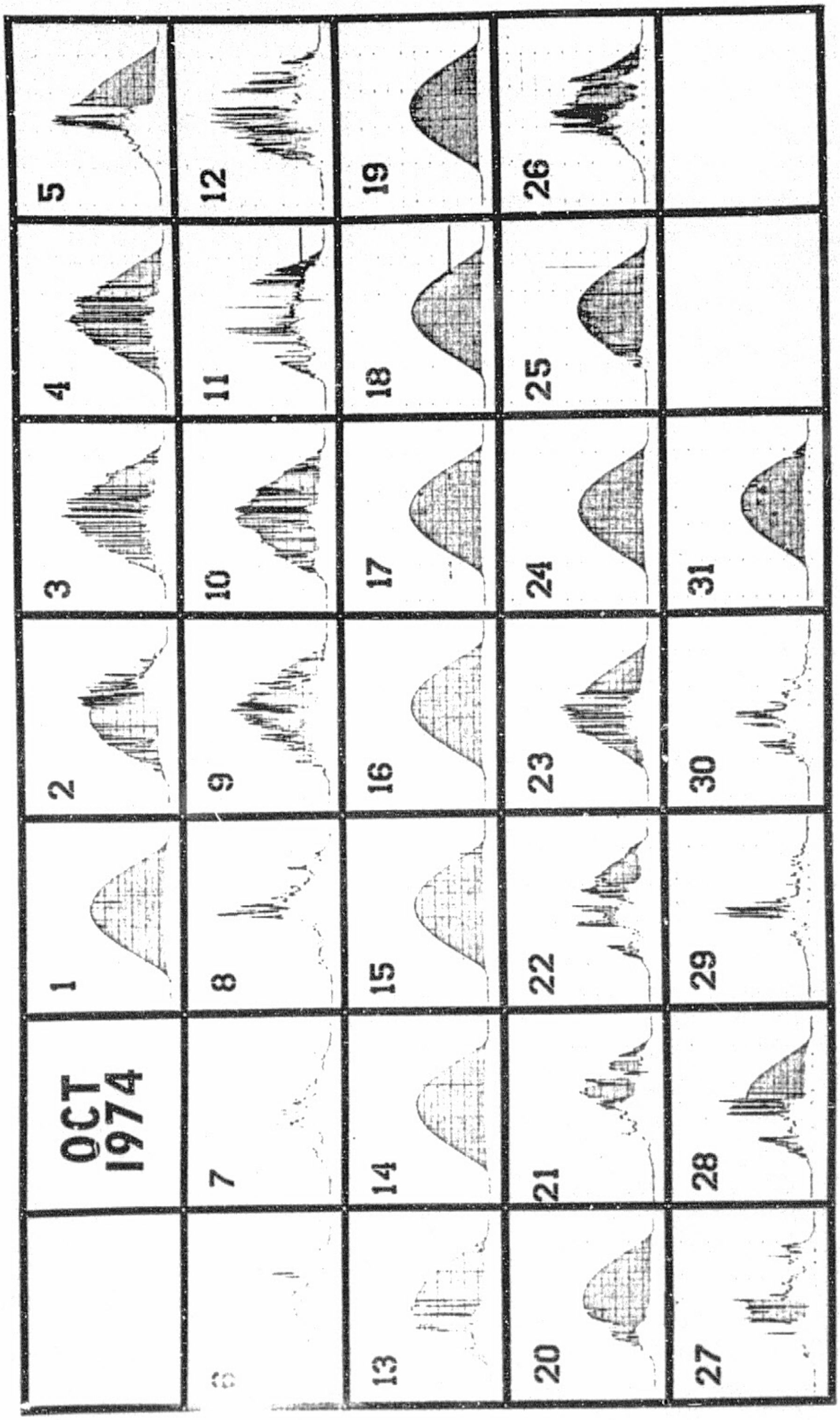

SEPT
1974


OCT
1974
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FLUX DATA

Legend:

TIME:	Local time in hours and decimal fractions of hours
DN:	Direct Normal
TH:	Total Horizontal
TH-1:	Total Horizontal with OG1 Filter
TH-2:	Total Horizontal with RG1 Filter
TH-3:	Total Horizontal with RG8 Filter
SH:	Scattered Horizontal
SH-1:	Scattered Horizontal with OG1 Filter
SH-2:	Scattered Horizontal with RG1 Filter
SH-3:	Scattered Horizontal with RG8 Filter

All data in units of watts/m^2

DATE: 10 AUG 1974 LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
6.50	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.67	488.	83.	61.	53.	43.	37.	21.	15.	13.
6.83	549.	116.	83.	73.	60.	44.	24.	17.	15.
7.00	598.	143.	103.	91.	76.	45.	27.	18.	16.
7.17	638.	174.	126.	109.	93.	44.	25.	19.	15.
7.33	669.	207.	150.	128.	109.	50.	29.	20.	16.
7.50	697.	242.	173.	148.	127.	50.	30.	20.	18.
7.67	717.	274.	195.	168.	144.	49.	28.	21.	17.
7.83	741.	312.	220.	189.	164.	54.	30.	22.	17.
8.00	756.	346.	246.	208.	183.	55.	33.	24.	19.
8.17	774.	378.	269.	228.	199.	55.	33.	23.	19.
8.33	789.	414.	294.	250.	218.	61.	37.	25.	22.
8.50	798.	446.	315.	268.	236.	59.	36.	25.	20.
8.67	810.	482.	339.	288.	253.	64.	36.	26.	22.
8.83	823.	515.	362.	308.	271.	64.	37.	27.	21.
9.00	838.	547.	384.	327.	288.	66.	37.	28.	22.
9.17	838.	575.	405.	346.	305.	67.	39.	28.	23.
9.33	854.	605.	425.	364.	320.	63.	37.	27.	22.
9.50	868.	632.	445.	381.	336.	64.	38.	27.	21.
9.67	874.	661.	464.	395.	349.	63.	38.	27.	20.
9.83	889.	690.	485.	416.	367.	71.	42.	32.	27.
10.00	887.	710.	499.	426.	378.	63.	39.	27.	21.
10.17	885.	731.	516.	439.	391.	68.	38.	29.	21.
10.33	887.	755.	531.	454.	402.	67.	41.	28.	24.
10.50	909.	779.	546.	468.	414.	67.	40.	28.	21.
10.67	923.	804.	567.	485.	429.	68.	40.	28.	22.
10.83	914.	819.	575.	493.	435.	64.	37.	28.	20.
11.00	921.	834.	587.	501.	445.	66.	37.	27.	20.
11.17	926.	851.	598.	514.	454.	63.	36.	25.	20.
11.33	935.	870.	611.	524.	463.	65.	37.	25.	20.
11.50	934.	886.	621.	534.	473.	65.	37.	25.	20.
11.67	931.	885.	623.	533.	473.	66.	36.	27.	21.
11.83	924.	888.	624.	534.	474.	64.	37.	26.	22.
12.00	934.	899.	632.	541.	479.	62.	36.	25.	20.
12.17	929.	908.	636.	548.	483.	69.	40.	29.	22.
12.33	937.	913.	642.	550.	488.	69.	40.	29.	23.
12.50	943.	917.	644.	555.	490.	69.	40.	30.	23.
12.67	934.	917.	644.	554.	489.	68.	40.	28.	23.
12.83	922.	903.	635.	546.	482.	71.	41.	30.	23.
13.00	926.	902.	634.	545.	482.	-99.	42.	-99.	-99.
13.17	930.	901.	634.	544.	481.	-99.	42.	-99.	-99.
13.33	923.	888.	625.	537.	474.	68.	41.	30.	22.
13.50	949.	891.	627.	541.	476.	65.	36.	26.	21.
13.67	947.	882.	621.	534.	471.	66.	39.	28.	24.
13.83	940.	863.	608.	523.	461.	63.	38.	26.	20.
14.00	925.	850.	598.	515.	453.	69.	42.	29.	23.
14.17	914.	819.	577.	495.	437.	66.	40.	27.	21.
14.33	909.	805.	568.	487.	430.	70.	43.	29.	22.
14.50	898.	788.	555.	475.	419.	73.	45.	31.	24.
14.67	889.	778.	549.	471.	415.	87.	55.	39.	31.
14.83	909.	771.	544.	466.	411.	89.	58.	40.	31.
15.00	895.	732.	517.	443.	390.	81.	53.	35.	27.
15.17	794.	617.	383.	265.	185.	-99.	67.	49.	-99.
15.33	11.	104.	73.	61.	60.	105.	69.	51.	39.
15.50	858.	655.	464.	398.	351.	99.	72.	45.	36.
15.67	857.	641.	454.	390.	342.	106.	82.	52.	41.
15.83	8.	83.	56.	47.	47.	88.	55.	42.	34.
16.00	660.	506.	359.	309.	72.	136.	104.	67.	55.
16.17	791.	575.	408.	350.	305.	153.	121.	77.	62.
16.33	770.	542.	385.	330.	288.	153.	127.	78.	62.
16.50	20.	95.	66.	56.	52.	97.	63.	50.	41.
16.67	0.	75.	52.	43.	41.	84.	55.	42.	32.
16.83	3.	69.	49.	41.	39.	81.	51.	40.	32.
17.00	467.	250.	178.	154.	136.	104.	88.	49.	38.
17.17	690.	336.	239.	206.	180.	114.	111.	49.	40.
17.33	680.	289.	206.	177.	154.	97.	101.	40.	31.
17.50	673.	256.	184.	159.	137.	95.	100.	37.	30.
17.67	640.	212.	153.	132.	115.	84.	89.	32.	25.
17.83	609.	172.	125.	109.	93.	71.	76.	25.	20.
18.00	596.	140.	103.	88.	77.	63.	69.	20.	17.
18.17	555.	108.	81.	69.	60.	57.	58.	18.	14.
18.33	517.	81.	61.	52.	45.	49.	47.	15.	11.
18.50	422.	51.	39.	35.	30.	38.	32.	13.	11.
18.67	365.	36.	27.	23.	20.	32.	25.	10.	8.
18.83	260.	18.	16.	13.	12.	23.	17.	8.	7.
19.00	159.	10.	10.	10.	6.	16.	11.	6.	6.
19.17	10.	3.	5.	5.	4.	12.	5.	4.	3.
19.33	1.	0.	3.	3.	1.	7.	3.	1.	2.
19.50	0.	0.	0.	0.	0.	0.	0.	0.	0.

DATE: 11 AUG 1974 LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
6.50	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.67	501.	77.	57.	49.	41.	31.	17.	11.	10.
6.83	556.	113.	81.	72.	60.	43.	25.	18.	16.
7.00	602.	142.	102.	89.	75.	44.	24.	18.	15.
7.17	643.	172.	124.	106.	91.	46.	24.	18.	15.
7.33	671.	207.	146.	127.	108.	48.	27.	19.	16.
7.50	700.	240.	169.	147.	125.	48.	28.	19.	15.
7.67	727.	273.	194.	165.	144.	51.	27.	19.	16.
7.83	751.	309.	217.	187.	161.	51.	29.	20.	18.
8.00	776.	344.	243.	207.	181.	50.	27.	20.	15.
8.17	795.	382.	268.	228.	201.	52.	29.	20.	16.
8.33	807.	413.	292.	247.	218.	51.	28.	21.	17.
8.50	821.	446.	314.	267.	234.	54.	29.	21.	16.
8.67	832.	481.	339.	289.	253.	57.	31.	22.	17.
8.83	844.	512.	361.	307.	271.	58.	31.	22.	17.
9.00	855.	544.	384.	327.	287.	60.	33.	22.	18.
9.17	863.	576.	404.	347.	304.	59.	32.	23.	17.
9.33	875.	608.	428.	365.	323.	62.	34.	24.	20.
9.50	883.	633.	447.	381.	336.	61.	33.	24.	18.
9.67	886.	663.	464.	399.	351.	64.	37.	24.	21.
9.83	889.	690.	484.	416.	367.	66.	36.	26.	20.
10.00	896.	716.	503.	431.	381.	67.	38.	27.	22.
10.17	890.	738.	517.	446.	393.	72.	40.	30.	23.
10.33	902.	767.	541.	464.	408.	77.	45.	31.	25.
10.50	906.	786.	552.	473.	417.	76.	45.	30.	23.
10.67	910.	800.	563.	483.	425.	67.	38.	27.	20.
10.83	907.	811.	572.	489.	432.	73.	41.	28.	21.
11.00	918.	834.	586.	502.	443.	72.	42.	29.	22.
11.17	916.	849.	597.	511.	453.	74.	41.	28.	22.
11.33	924.	863.	607.	522.	460.	73.	42.	28.	20.
11.50	924.	874.	614.	527.	466.	72.	42.	29.	21.
11.67	923.	883.	619.	535.	471.	77.	44.	30.	24.
11.83	927.	893.	630.	540.	477.	71.	40.	28.	21.
12.00	924.	902.	635.	546.	481.	78.	45.	31.	25.
12.17	923.	908.	638.	549.	483.	80.	48.	31.	26.
12.33	938.	917.	642.	555.	489.	79.	46.	31.	24.
12.50	930.	920.	648.	555.	490.	87.	54.	37.	30.
12.67	920.	920.	647.	557.	491.	93.	58.	39.	30.
12.83	920.	905.	635.	545.	481.	77.	48.	31.	24.
13.00	924.	900.	633.	546.	480.	81.	49.	32.	26.
13.17	915.	891.	626.	540.	476.	79.	49.	30.	23.
13.33	909.	877.	616.	530.	467.	81.	51.	31.	24.
13.50	907.	875.	614.	527.	465.	87.	54.	33.	26.
13.67	908.	863.	606.	520.	459.	86.	57.	35.	27.
13.83	895.	846.	595.	512.	452.	90.	61.	36.	29.
14.00	894.	839.	592.	508.	447.	99.	69.	41.	32.
14.17	886.	826.	582.	500.	438.	102.	74.	43.	33.
14.33	882.	804.	567.	488.	429.	109.	81.	45.	36.
14.50	865.	789.	556.	479.	419.	129.	97.	56.	45.
14.67	869.	798.	564.	484.	425.	140.	111.	63.	50.
14.83	859.	744.	525.	451.	396.	116.	95.	47.	38.
15.00	852.	712.	503.	432.	380.	111.	96.	44.	34.
15.17	853.	685.	483.	415.	365.	111.	99.	42.	34.
15.33	844.	656.	464.	398.	350.	106.	100.	39.	30.
15.50	851.	635.	448.	385.	338.	103.	108.	37.	28.
15.67	851.	604.	428.	367.	323.	104.	113.	36.	27.
15.83	835.	572.	405.	348.	307.	113.	124.	37.	30.
16.00	820.	542.	384.	330.	289.	117.	134.	39.	30.
16.17	803.	515.	365.	313.	274.	128.	144.	43.	33.
16.33	610.	393.	281.	245.	219.	125.	135.	40.	32.
16.50	789.	452.	321.	277.	242.	130.	155.	40.	32.
16.67	746.	421.	301.	259.	226.	139.	157.	45.	37.
16.83	706.	381.	274.	237.	207.	141.	156.	41.	34.
17.00	727.	349.	249.	216.	186.	138.	155.	40.	31.
17.17	705.	318.	225.	195.	170.	141.	153.	40.	33.
17.33	461.	195.	138.	118.	105.	97.	99.	31.	24.
17.50	454.	178.	128.	112.	99.	106.	101.	28.	22.
17.67	608.	193.	141.	121.	105.	115.	110.	28.	21.
17.83	594.	174.	124.	109.	92.	112.	106.	30.	25.
18.00	556.	144.	105.	91.	79.	107.	92.	31.	24.
18.17	6.	30.	23.	19.	20.	43.	25.	18.	14.
18.33	6.	24.	18.	15.	15.	34.	19.	15.	12.
18.50	231.	35.	28.	24.	22.	41.	27.	13.	10.
18.67	306.	28.	23.	20.	17.	34.	22.	11.	8.
18.83	80.	13.	12.	11.	8.	20.	12.	7.	8.
19.00	116.	6.	7.	8.	6.	18.	9.	6.	6.
19.17	7.	3.	3.	5.	2.	10.	4.	1.	3.
19.33	1.	0.	1.	0.	1.	5.	2.	1.	2.
19.50	0.	0.	0.	0.	0.	0.	0.	0.	0.

ORIGINAL PAGE IS
OF POOR QUALITY

DATE: 12 AUG 1974 LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
6.50	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.67	493.	61.	46.	36.	31.	22.	6.	4.	0.
6.83	547.	114.	82.	75.	61.	53.	29.	20.	17.
7.00	601.	151.	109.	95.	80.	60.	34.	25.	21.
7.17	635.	171.	122.	107.	91.	58.	27.	18.	15.
7.33	679.	203.	146.	128.	108.	57.	27.	18.	15.
7.50	715.	240.	170.	145.	125.	55.	28.	17.	16.
7.67	740.	273.	193.	165.	143.	57.	27.	18.	14.
7.83	758.	307.	218.	187.	163.	63.	28.	18.	16.
8.00	778.	338.	239.	205.	178.	60.	28.	19.	15.
8.17	797.	372.	263.	225.	196.	65.	29.	19.	16.
8.33	811.	407.	286.	247.	214.	69.	32.	20.	17.
8.50	830.	442.	312.	266.	234.	72.	33.	21.	16.
8.67	831.	472.	333.	286.	251.	78.	35.	23.	20.
8.83	843.	502.	354.	303.	266.	76.	33.	22.	17.
9.00	854.	537.	378.	324.	284.	81.	36.	24.	20.
9.17	855.	562.	395.	339.	298.	82.	37.	24.	18.
9.33	886.	602.	426.	367.	321.	94.	44.	28.	25.
9.50	884.	634.	446.	386.	337.	100.	46.	31.	28.
9.67	889.	658.	460.	399.	354.	93.	47.	32.	26.
9.83	870.	704.	493.	426.	376.	113.	57.	45.	37.
10.00	892.	708.	494.	427.	378.	92.	46.	30.	23.
10.17	907.	730.	510.	439.	389.	96.	48.	31.	24.
10.33	898.	752.	525.	454.	402.	99.	51.	33.	24.
10.50	897.	772.	539.	466.	412.	102.	53.	33.	25.
10.67	898.	791.	554.	478.	423.	104.	56.	37.	29.
10.83	892.	807.	563.	486.	430.	112.	60.	38.	28.
11.00	900.	823.	576.	496.	440.	111.	61.	37.	28.
11.17	904.	839.	586.	506.	449.	112.	62.	37.	27.
11.33	903.	854.	597.	516.	458.	114.	65.	38.	29.
11.50	911.	868.	607.	525.	466.	117.	67.	38.	29.
11.67	914.	878.	615.	531.	470.	114.	69.	39.	30.
11.83	910.	883.	617.	533.	473.	114.	67.	38.	29.
12.00	920.	897.	625.	539.	478.	107.	66.	37.	28.
12.17	918.	896.	627.	543.	479.	107.	68.	36.	27.
12.33	923.	902.	631.	544.	483.	105.	69.	37.	28.
12.50	929.	905.	632.	547.	484.	108.	74.	38.	28.
12.67	926.	903.	632.	546.	483.	107.	75.	37.	28.
12.83	915.	897.	628.	541.	477.	109.	77.	37.	27.
13.00	907.	884.	619.	535.	473.	110.	82.	38.	28.
13.17	911.	882.	618.	533.	472.	114.	87.	40.	31.
13.33	911.	878.	613.	529.	470.	116.	94.	39.	28.
13.50	910.	872.	611.	528.	467.	124.	102.	43.	32.
13.67	903.	851.	596.	516.	457.	125.	104.	40.	31.
13.83	899.	835.	585.	505.	448.	127.	111.	41.	31.
14.00	894.	819.	575.	496.	439.	131.	119.	40.	29.
14.17	890.	801.	562.	484.	428.	135.	130.	41.	29.
14.33	885.	782.	549.	473.	418.	137.	136.	40.	27.
14.50	877.	762.	534.	459.	407.	140.	146.	41.	28.
14.67	885.	746.	523.	452.	399.	144.	154.	42.	30.
14.83	873.	727.	508.	438.	388.	154.	169.	44.	33.
15.00	874.	704.	493.	425.	377.	166.	182.	45.	32.
15.17	865.	675.	476.	409.	362.	171.	193.	42.	32.
15.33	852.	647.	454.	393.	348.	177.	202.	42.	32.
15.50	850.	616.	435.	374.	332.	180.	208.	42.	32.
15.67	849.	589.	414.	358.	315.	182.	216.	39.	31.
15.83	852.	565.	397.	342.	304.	192.	223.	38.	29.
16.00	841.	534.	374.	325.	287.	202.	226.	38.	29.
16.17	837.	501.	352.	305.	269.	204.	228.	37.	27.
16.33	820.	466.	329.	285.	250.	209.	227.	35.	28.
16.50	807.	433.	305.	265.	232.	210.	223.	34.	26.
16.67	793.	400.	283.	244.	215.	215.	217.	34.	25.
16.83	771.	363.	256.	222.	195.	208.	205.	34.	25.
17.00	762.	334.	235.	203.	178.	205.	194.	32.	23.
17.17	719.	292.	207.	178.	158.	190.	175.	31.	23.
17.33	711.	263.	184.	162.	140.	182.	162.	31.	21.
17.50	691.	289.	162.	141.	126.	164.	144.	29.	20.
17.67	663.	195.	138.	121.	107.	148.	128.	28.	19.
17.83	636.	164.	115.	100.	88.	128.	107.	25.	16.
18.00	602.	134.	94.	84.	73.	109.	89.	25.	17.
18.17	562.	104.	74.	67.	58.	88.	72.	23.	16.
18.33	518.	77.	55.	50.	43.	66.	55.	20.	12.
18.50	447.	53.	37.	34.	30.	43.	39.	17.	11.
18.67	357.	33.	24.	21.	19.	27.	26.	13.	9.
18.83	265.	19.	13.	13.	11.	16.	16.	9.	8.
19.00	146.	11.	6.	8.	5.	4.	7.	7.	4.
19.17	4.	3.	2.	3.	3.	0.	4.	3.	2.
19.33	0.	0.	0.	0.	0.	0.	0.	0.	0.

ORIGINAL PAGE IS OF POOR QUALITY

DATE: 13 AUG 1974   LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
6.50	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.67	488.	80.	55.	50.	43.	44.	22.	16.	13.
6.83	541.	107.	75.	67.	59.	53.	26.	18.	15.
7.00	593.	137.	97.	85.	74.	63.	28.	19.	15.
7.17	623.	166.	117.	101.	87.	69.	28.	19.	15.
7.33	662.	200.	141.	121.	107.	80.	31.	21.	16.
7.50	689.	233.	164.	141.	124.	86.	32.	22.	17.
7.67	706.	265.	187.	160.	140.	96.	37.	23.	17.
7.83	724.	304.	213.	182.	160.	110.	42.	28.	21.
8.00	738.	363.	255.	217.	191.	145.	64.	44.	35.
8.17	746.	391.	275.	235.	206.	150.	65.	44.	35.
8.33	205.	235.	161.	135.	119.	157.	90.	70.	58.
8.50	49.	202.	138.	120.	110.	178.	124.	101.	83.
8.67	205.	177.	115.	93.	88.	121.	77.	61.	48.
8.83	793.	520.	363.	310.	274.	183.	77.	49.	39.
9.00	796.	553.	387.	331.	294.	198.	87.	55.	43.
9.17	794.	657.	461.	395.	349.	263.	129.	90.	73.
9.33	255.	417.	321.	286.	263.	312.	167.	126.	104.
9.50	77.	385.	316.	328.	349.	392.	216.	159.	132.
9.67	800.	773.	542.	468.	412.	-99.	157.	110.	89.
9.83	843.	681.	473.	405.	361.	217.	89.	45.	34.
10.00	865.	704.	490.	420.	375.	221.	89.	41.	32.
10.17	865.	722.	506.	435.	388.	229.	95.	41.	31.
10.33	872.	746.	523.	451.	401.	233.	99.	43.	34.
10.50	881.	769.	536.	461.	410.	238.	100.	42.	32.
10.67	887.	786.	549.	473.	422.	244.	107.	42.	32.
10.83	892.	806.	563.	484.	432.	248.	113.	43.	32.
11.00	882.	818.	571.	490.	437.	249.	117.	45.	34.
11.17	892.	831.	579.	500.	444.	253.	118.	44.	33.
11.33	901.	844.	591.	508.	452.	248.	123.	43.	33.
11.50	906.	856.	598.	516.	460.	252.	127.	41.	31.
11.67	902.	867.	605.	522.	465.	255.	134.	42.	33.
11.83	916.	881.	611.	526.	472.	255.	137.	42.	32.
12.00	919.	883.	618.	529.	473.	246.	140.	40.	32.
12.17	908.	884.	616.	529.	472.	241.	144.	43.	32.
12.33	912.	886.	618.	532.	474.	242.	149.	43.	31.
12.50	915.	889.	620.	533.	475.	242.	155.	41.	33.
12.67	911.	886.	618.	530.	473.	236.	159.	41.	32.
12.83	912.	883.	6 9.	532.	472.	241.	170.	43.	31.
13.00	912.	879.	615.	526.	472.	248.	179.	43.	31.
13.17	914.	872.	612.	525.	468.	253.	194.	42.	34.
13.33	908.	867.	606.	522.	464.	260.	205.	43.	36.
13.50	908.	855.	600.	515.	458.	263.	217.	46.	34.
13.67	903.	846.	590.	507.	452.	271.	225.	45.	33.
13.83	906.	834.	582.	501.	446.	281.	243.	45.	34.
14.00	903.	817.	571.	490.	438.	282.	249.	44.	32.
14.17	898.	800.	561.	480.	427.	295.	267.	44.	32.
14.33	901.	781.	548.	470.	420.	308.	280.	44.	34.
14.50	894.	761.	533.	460.	407.	318.	292.	44.	34.
14.67	883.	737.	516.	444.	393.	321.	299.	43.	34.
14.83	888.	721.	505.	433.	382.	332.	310.	46.	33.
15.00	851.	684.	483.	416.	369.	341.	313.	49.	40.
15.17	871.	666.	470.	404.	358.	343.	317.	46.	35.
15.33	866.	644.	454.	393.	348.	364.	326.	49.	40.
15.50	848.	611.	430.	369.	328.	357.	319.	46.	35.
15.67	857.	587.	413.	354.	315.	361.	321.	45.	34.
15.83	835.	551.	388.	333.	295.	358.	311.	45.	33.
16.00	814.	515.	363.	311.	277.	355.	301.	45.	32.
16.17	823.	493.	349.	300.	266.	352.	296.	45.	32.
16.33	797.	456.	320.	275.	245.	339.	279.	44.	31.
16.50	799.	430.	302.	260.	231.	331.	268.	44.	31.
16.67	781.	397.	279.	240.	214.	317.	252.	46.	31.
16.83	747.	359.	252.	217.	194.	298.	234.	49.	32.
17.00	710.	329.	233.	202.	178.	276.	216.	52.	34.
17.17	677.	286.	200.	174.	154.	246.	190.	50.	32.
17.33	640.	250.	176.	152.	135.	218.	168.	50.	31.
17.50	614.	216.	152.	132.	118.	190.	147.	48.	28.
17.67	590.	187.	131.	114.	100.	165.	126.	45.	26.
17.83	543.	149.	105.	92.	82.	134.	105.	44.	24.
18.00	516.	123.	86.	76.	67.	111.	87.	41.	23.
18.17	459.	94.	65.	59.	53.	85.	66.	34.	19.
18.33	47.	39.	26.	23.	24.	34.	28.	21.	16.
18.50	280.	56.	41.	35.	33.	52.	40.	30.	19.
18.67	21.	25.	14.	14.	14.	16.	15.	13.	11.
18.83	165.	20.	13.	12.	10.	12.	14.	12.	8.
19.00	67.	8.	5.	5.	4.	3.	5.	5.	4.
19.17	2.	4.	2.	4.	3.	0.	3.	3.	3.
19.33	2.	2.	0.	2.	2.	0.	1.	1.	0.
19.50	0.	0.	0.	0.	0.	0.	0.	0.	0.

DATE: 20 AUG 1974 LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
6.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.17	127.	9.	6.	8.	8.	11.	10.	6.	2.
6.33	269.	19.	15.	15.	14.	16.	12.	7.	2.
6.50	379.	39.	27.	26.	23.	18.	13.	8.	5.
6.67	478.	63.	44.	39.	36.	25.	16.	10.	5.
6.83	545.	92.	65.	56.	50.	29.	18.	12.	8.
7.00	599.	117.	84.	72.	64.	26.	18.	12.	6.
7.17	644.	152.	106.	93.	81.	29.	17.	12.	6.
7.33	687.	188.	132.	112.	98.	32.	20.	14.	10.
7.50	722.	223.	157.	133.	117.	34.	20.	14.	10.
7.67	741.	258.	181.	154.	136.	36.	22.	14.	8.
7.83	761.	292.	206.	175.	153.	36.	23.	15.	10.
8.00	780.	321.	226.	191.	170.	37.	25.	17.	9.
8.17	808.	361.	255.	216.	190.	41.	25.	17.	12.
8.33	815.	393.	276.	237.	207.	38.	23.	16.	11.
8.50	838.	431.	304.	256.	228.	42.	24.	18.	11.
8.67	843.	462.	324.	277.	244.	44.	25.	18.	11.
8.83	858.	499.	349.	297.	268.	42.	25.	18.	12.
9.00	880.	529.	372.	317.	280.	38.	24.	16.	9.
9.17	882.	561.	395.	334.	295.	40.	24.	18.	11.
9.33	893.	592.	415.	355.	314.	43.	28.	18.	12.
9.50	906.	624.	438.	375.	333.	48.	29.	18.	13.
9.67	898.	643.	451.	387.	343.	48.	28.	20.	16.
9.83	908.	672.	472.	405.	356.	47.	31.	19.	15.
10.00	924.	709.	497.	427.	375.	49.	32.	19.	16.
10.17	922.	727.	512.	437.	387.	51.	31.	21.	13.
10.33	941.	755.	530.	453.	399.	43.	26.	18.	13.
10.50	932.	767.	538.	460.	408.	52.	29.	20.	15.
10.67	945.	794.	559.	481.	425.	50.	31.	21.	15.
10.83	944.	810.	570.	489.	430.	46.	25.	17.	11.
11.00	951.	828.	582.	500.	440.	44.	26.	17.	11.
11.17	957.	847.	595.	511.	451.	42.	27.	18.	11.
11.33	966.	865.	608.	523.	461.	48.	30.	20.	14.
11.50	964.	875.	615.	528.	466.	43.	26.	17.	11.
11.67	961.	882.	620.	533.	470.	50.	29.	21.	14.
11.83	961.	886.	624.	536.	474.	45.	27.	19.	12.
12.00	962.	896.	630.	541.	478.	46.	28.	19.	13.
12.17	968.	903.	634.	547.	482.	46.	28.	18.	12.
12.33	954.	896.	630.	542.	480.	46.	28.	19.	13.
12.50	964.	904.	637.	545.	483.	48.	29.	18.	11.
12.67	954.	897.	633.	540.	479.	43.	28.	17.	12.
12.83	968.	906.	639.	547.	484.	48.	30.	18.	13.
13.00	949.	893.	628.	537.	475.	47.	31.	20.	12.
13.17	963.	900.	633.	545.	480.	49.	31.	21.	13.
13.33	968.	885.	623.	536.	473.	49.	30.	20.	13.
13.50	949.	885.	622.	536.	473.	58.	38.	26.	18.
13.67	915.	873.	614.	526.	466.	83.	55.	41.	30.
13.83	921.	881.	621.	532.	471.	104.	69.	54.	40.
14.00	931.	863.	611.	523.	461.	91.	61.	44.	31.
14.17	35.	173.	117.	100.	94.	154.	105.	82.	64.
14.33	869.	811.	572.	491.	433.	81.	54.	41.	30.
14.50	-99.	808.	565.	485.	427.	64.	40.	29.	21.
14.67	922.	745.	527.	454.	401.	50.	34.	22.	15.
14.83	916.	720.	508.	436.	385.	51.	30.	21.	14.
15.00	906.	697.	492.	424.	373.	52.	34.	23.	16.
15.17	896.	680.	480.	412.	363.	64.	42.	30.	22.
15.33	890.	640.	452.	388.	343.	50.	32.	21.	14.
15.50	878.	607.	428.	368.	324.	47.	29.	19.	12.
15.67	861.	577.	408.	351.	309.	54.	34.	23.	16.
15.83	856.	550.	388.	333.	295.	54.	34.	23.	17.
16.00	847.	518.	366.	316.	279.	54.	34.	24.	17.
16.17	848.	487.	343.	294.	261.	49.	34.	24.	16.
16.33	833.	454.	320.	275.	244.	50.	32.	21.	15.
16.50	816.	413.	298.	251.	222.	45.	29.	19.	18.
16.67	802.	382.	270.	232.	205.	49.	30.	20.	14.
16.83	776.	346.	244.	210.	185.	47.	31.	19.	13.
17.00	175.	72.	42.	31.	29.	44.	25.	17.	13.
17.17	19.	42.	28.	23.	26.	42.	25.	19.	11.
17.33	7.	38.	22.	21.	22.	42.	27.	18.	11.
17.50	654.	204.	142.	126.	111.	43.	32.	20.	14.
17.67	627.	172.	120.	104.	92.	41.	34.	20.	13.
17.83	604.	152.	105.	95.	81.	47.	39.	23.	19.
18.00	574.	129.	94.	82.	71.	55.	43.	30.	21.
18.17	524.	91.	64.	56.	51.	44.	31.	21.	13.
18.33	460.	59.	38.	38.	31.	30.	23.	12.	8.
18.50	380.	35.	26.	24.	21.	23.	17.	10.	8.
18.67	244.	17.	13.	14.	11.	15.	13.	9.	4.
18.83	120.	12.	7.	8.	5.	13.	8.	6.	5.
19.00	1.	3.	2.	6.	3.	5.	5.	4.	1.
19.17	0.	4.	1.	2.	0.	6.	2.	0.	1.
19.33	0.	0.	0.	0.	0.	0.	0.	0.	0.

DATE: 21 AUG 1974 LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.67	0.	0.	0.	0.	0.	0.	0.	0.	0.
5.83	2.	6.	1.	4.	5.	5.	4.	2.	2.
6.00	27.	9.	5.	8.	9.	1.	11.	7.	3.
6.17	147.	19.	11.	12.	12.	20.	15.	8.	5.
6.33	243.	31.	21.	20.	18.	27.	15.	11.	8.
6.50	343.	49.	35.	32.	28.	31.	18.	13.	9.
6.67	420.	71.	50.	44.	39.	38.	19.	14.	9.
6.83	488.	100.	70.	62.	55.	35.	24.	16.	10.
7.00	540.	128.	89.	78.	69.	39.	25.	18.	12.
7.17	592.	159.	111.	97.	87.	45.	26.	18.	13.
7.33	629.	192.	134.	116.	103.	44.	26.	18.	14.
7.50	660.	229.	161.	137.	122.	49.	32.	21.	17.
7.67	684.	261.	182.	157.	137.	48.	32.	21.	16.
7.83	708.	295.	208.	176.	156.	54.	34.	22.	16.
8.00	731.	328.	230.	194.	174.	53.	32.	24.	15.
8.17	751.	362.	254.	215.	190.	54.	35.	23.	17.
8.33	766.	397.	281.	234.	210.	50.	35.	25.	20.
8.50	777.	427.	303.	256.	227.	49.	33.	25.	16.
8.67	803.	463.	327.	278.	246.	51.	35.	25.	17.
8.83	810.	496.	349.	296.	262.	51.	36.	27.	18.
9.00	821.	530.	372.	315.	280.	52.	36.	27.	18.
9.17	830.	557.	392.	332.	296.	56.	36.	28.	20.
9.33	845.	588.	414.	351.	312.	58.	37.	29.	22.
9.50	849.	614.	433.	366.	325.	52.	33.	26.	18.
9.67	864.	643.	453.	383.	341.	53.	34.	27.	18.
9.83	856.	674.	474.	402.	357.	56.	37.	28.	19.
10.00	869.	697.	490.	418.	372.	61.	41.	32.	23.
10.17	873.	719.	506.	430.	383.	57.	39.	30.	20.
10.33	878.	735.	517.	438.	390.	57.	37.	28.	19.
10.50	890.	759.	534.	455.	405.	54.	39.	30.	19.
10.67	898.	779.	548.	469.	418.	57.	39.	30.	20.
10.83	894.	792.	558.	475.	425.	55.	39.	30.	20.
11.00	902.	816.	574.	490.	436.	58.	39.	29.	20.
11.17	897.	834.	587.	501.	445.	65.	43.	33.	25.
11.33	902.	842.	591.	505.	448.	61.	41.	31.	20.
11.50	905.	858.	603.	513.	456.	61.	42.	32.	21.
11.67	900.	866.	607.	517.	463.	68.	44.	32.	23.
11.83	902.	870.	611.	521.	464.	64.	42.	33.	23.
12.00	905.	880.	618.	530.	470.	68.	45.	37.	27.
12.17	898.	883.	620.	531.	471.	71.	47.	38.	28.
12.33	905.	887.	622.	531.	474.	71.	47.	39.	29.
12.50	904.	892.	626.	533.	474.	73.	51.	40.	27.
12.67	899.	897.	630.	536.	478.	82.	58.	45.	31.
12.83	897.	896.	632.	540.	480.	89.	62.	49.	35.
13.00	897.	895.	629.	536.	478.	91.	64.	51.	36.
13.17	878.	913.	643.	548.	486.	119.	83.	65.	49.
13.33	892.	894.	631.	539.	479.	107.	75.	60.	44.
13.50	894.	910.	641.	545.	484.	128.	90.	74.	57.
13.67	876.	886.	685.	534.	471.	126.	86.	70.	51.
13.83	864.	851.	600.	512.	454.	109.	77.	60.	47.
14.00	871.	832.	586.	498.	445.	102.	68.	56.	42.
14.17	874.	810.	570.	483.	433.	93.	63.	48.	37.
14.33	875.	794.	559.	474.	424.	91.	62.	47.	36.
14.50	536.	604.	443.	388.	359.	87.	59.	45.	33.
14.67	870.	757.	534.	454.	404.	95.	62.	51.	36.
14.83	875.	729.	517.	438.	391.	85.	58.	44.	34.
15.00	856.	722.	512.	439.	387.	108.	75.	62.	47.
15.17	834.	696.	490.	418.	372.	112.	75.	59.	46.
15.33	826.	677.	479.	407.	368.	115.	79.	63.	50.
15.50	822.	641.	453.	387.	343.	107.	78.	61.	45.
15.67	808.	615.	437.	373.	328.	116.	79.	63.	47.
15.83	602.	595.	424.	359.	319.	118.	82.	68.	54.
16.00	786.	534.	381.	323.	288.	95.	64.	53.	39.
16.17	757.	485.	345.	295.	259.	84.	59.	44.	35.
16.33	776.	465.	330.	282.	249.	76.	53.	41.	32.
16.50	764.	428.	301.	260.	229.	73.	47.	39.	26.
16.67	740.	388.	278.	236.	210.	67.	48.	37.	30.
16.83	732.	362.	258.	218.	196.	69.	49.	38.	30.
17.00	704.	327.	235.	200.	177.	72.	51.	38.	31.
17.17	615.	279.	197.	170.	151.	73.	50.	42.	31.
17.33	654.	265.	187.	163.	148.	67.	48.	41.	31.
17.50	7.	78.	52.	43.	41.	69.	51.	39.	30.
17.67	583.	219.	158.	136.	119.	84.	62.	53.	42.
17.83	554.	179.	131.	114.	99.	77.	59.	48.	42.
18.00	493.	128.	93.	84.	71.	55.	40.	32.	26.
18.17	471.	86.	61.	55.	49.	32.	28.	21.	14.
18.33	417.	55.	40.	37.	33.	20.	19.	14.	9.
18.50	344.	38.	25.	24.	20.	18.	14.	13.	7.
18.67	231.	25.	16.	14.	14.	17.	10.	11.	6.
18.83	128.	14.	11.	12.	10.	9.	18.	8.	6.
19.00	1.	6.	4.	6.	6.	4.	5.	3.	2.
19.17	0.	0.	1.	0.	2.	0.	0.	1.	0.
19.33	0.	0.	0.	0.	0.	0.	0.	0.	0.

DATE: 22 AUG 1974 LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.67	0.	0.	0.	0.	0.	0.	0.	0.	0.
5.83	2.	4.	2.	6.	2.	0.	2.	3.	[illegible]
6.00	3.	7.	5.	6.	6.	3.	5.	4.	3.
6.17	83.	12.	11.	11.	8.	9.	10.	9.	5.
6.33	226.	27.	19.	17.	17.	18.	15.	10.	6.
6.50	263.	38.	29.	26.	22.	21.	16.	13.	8.
6.67	370.	64.	45.	41.	35.	27.	19.	15.	9.
6.83	443.	91.	65.	54.	50.	30.	22.	16.	12.
7.00	505.	119.	86.	71.	64.	31.	23.	17.	11.
7.17	551.	147.	106.	91.	78.	37.	24.	19.	10.
7.33	591.	183.	129.	110.	97.	39.	26.	21.	14.
7.50	615.	214.	153.	128.	112.	41.	29.	23.	13.
7.67	641.	251.	175.	149.	132.	45.	29.	23.	16.
7.83	671.	280.	198.	167.	146.	46.	29.	23.	14.
8.00	696.	321.	225.	189.	166.	50.	34.	27.	18.
8.17	723.	358.	253.	215.	188.	56.	36.	28.	19.
8.33	743.	396.	278.	235.	207.	66.	36.	29.	24.
8.50	759.	425.	298.	253.	224.	64.	34.	28.	22.
8.67	785.	467.	327.	274.	245.	66.	37.	29.	23.
8.83	801.	494.	350.	296.	259.	66.	37.	28.	21.
9.00	808.	525.	372.	314.	277.	71.	41.	29.	24.
9.17	819.	558.	392.	331.	292.	69.	37.	29.	25.
9.33	827.	588.	415.	352.	311.	69.	41.	31.	24.
9.50	832.	616.	435.	369.	326.	70.	41.	31.	24.
9.67	835.	639.	451.	383.	339.	78.	44.	33.	27.
9.83	836.	665.	468.	397.	351.	80.	43.	33.	27.
10.00	846.	695.	490.	416.	367.	84.	46.	35.	29.
10.17	849.	717.	506.	433.	383.	86.	48.	36.	29.
10.33	857.	742.	521.	446.	396.	86.	45.	38.	32.
10.50	857.	763.	539.	461.	406.	94.	56.	41.	33.
10.67	857.	793.	556.	476.	421.	103.	59.	48.	36.
10.83	862.	817.	579.	492.	437.	111.	67.	53.	43.
11.00	867.	837.	590.	506.	448.	118.	69.	54.	46.
11.17	873.	848.	601.	511.	454.	115.	67.	54.	41.
11.33	706.	761.	540.	466.	417.	131.	83.	63.	53.
11.50	804.	900.	637.	543.	481.	192.	124.	100.	83.
11.67	724.	843.	588.	500.	443.	189.	123.	102.	84.
11.83	852.	940.	664.	564.	500.	184.	119.	93.	77.
12.00	862.	949.	673.	571.	508.	179.	112.	91.	72.
12.17	859.	1007.	713.	608.	535.	230.	151.	124.	102.
12.33	792.	972.	683.	582.	510.	253.	171.	143.	116.
12.50	832.	1073.	761.	652.	572.	308.	209.	173.	142.
12.67	766.	1025.	730.	628.	551.	292.	201.	165.	135.
12.83	844.	985.	696.	596.	527.	221.	146.	119.	96.
13.00	809.	949.	672.	576.	506.	222.	147.	119.	94.
13.17	666.	837.	586.	497.	433.	257.	170.	137.	113.
13.33	783.	944.	669.	573.	502.	247.	163.	132.	108.
13.50	820.	941.	667.	574.	503.	220.	142.	116.	96.
13.67	102.	382.	260.	217.	201.	311.	209.	174.	142.
13.83	701.	781.	547.	465.	410.	196.	127.	100.	80.
14.00	845.	867.	613.	525.	463.	161.	102.	84.	67.
14.17	839.	900.	637.	546.	482.	215.	140.	114.	95.
14.33	820.	962.	686.	583.	512.	302.	205.	167.	136.
14.50	0.	295.	206.	174.	159.	302.	206.	173.	144.
14.67	15.	305.	214.	182.	165.	287.	199.	169.	140.
14.83	770.	903.	646.	554.	477.	315.	219.	183.	151.
15.00	635.	720.	516.	445.	383.	240.	165.	138.	115.
15.17	777.	858.	610.	523.	451.	300.	207.	173.	146.
15.33	653.	749.	536.	461.	399.	287.	198.	167.	140.
15.50	515.	609.	434.	372.	320.	264.	186.	154.	130.
15.67	107.	286.	204.	175.	154.	226.	154.	128.	111.
15.83	83.	239.	170.	147.	133.	196.	133.	108.	91.
16.00	680.	569.	405.	350.	304.	186.	125.	101.	87.
16.17	630.	522.	374.	323.	279.	192.	130.	107.	90.
16.33	711.	561.	401.	345.	298.	203.	137.	114.	95.
16.50	697.	527.	377.	323.	280.	200.	136.	112.	93.
16.67	685.	479.	343.	296.	256.	180.	124.	102.	84.
16.83	650.	414.	296.	255.	220.	158.	106.	87.	73.
17.00	318.	249.	176.	150.	133.	139.	93.	77.	64.
17.17	557.	306.	218.	188.	161.	132.	86.	69.	58.
17.33	565.	265.	189.	162.	140.	109.	70.	56.	47.
17.50	520.	231.	168.	148.	126.	108.	72.	56.	47.
17.67	236.	145.	105.	92.	80.	98.	66.	52.	44.
17.83	421.	155.	111.	97.	81.	83.	55.	44.	38.
18.00	373.	111.	80.	71.	60.	62.	42.	33.	29.
18.17	0.	39.	27.	24.	24.	45.	30.	24.	23.
18.33	0.	30.	22.	20.	19.	35.	24.	20.	20.
18.50	0.	29.	21.	21.	17.	30.	21.	17.	17.
18.67	3.	14.	11.	11.	8.	13.	8.	6.	7.
18.83	45.	8.	5.	5.	4.	11.	4.	4.	7.
19.00	1.	1.	1.	1.	1.	5.	0.	0.	4.
19.17	0.	0.	0.	0.	0.	0.	0.	0.	0.

DATE: 23 AUG 1974   LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.67	0.	0.	0.	0.	0.	0.	0.	0.	0.
5.83	2.	3.	1.	3.	4.	4.	5.	3.	5.
6.00	3.	8.	5.	4.	5.	8.	7.	4.	5.
6.17	175.	15.	12.	11.	9.	20.	8.	8.	11.
6.33	280.	25.	21.	19.	14.	19.	12.	11.	10.
6.50	378.	40.	30.	29.	26.	27.	13.	9.	11.
6.67	445.	64.	47.	44.	38.	32.	16.	11.	12.
6.83	504.	90.	65.	57.	51.	38.	20.	15.	13.
7.00	554.	117.	85.	73.	65.	34.	19.	15.	13.
7.17	598.	155.	110.	93.	82.	37.	21.	16.	14.
7.33	633.	186.	133.	113.	98.	37.	21.	15.	13.
7.50	665.	221.	156.	132.	117.	47.	26.	20.	18.
7.67	696.	255.	180.	153.	135.	43.	27.	20.	17.
7.83	725.	290.	205.	171.	150.	47.	23.	17.	15.
8.00	755.	326.	230.	193.	171.	48.	26.	19.	17.
8.17	771.	354.	251.	210.	186.	47.	24.	19.	16.
8.33	787.	396.	280.	235.	207.	53.	30.	23.	15.
8.50	805.	428.	302.	254.	225.	46.	29.	20.	10.
8.67	812.	462.	326.	277.	244.	51.	29.	24.	16.
8.83	831.	494.	351.	297.	260.	49.	32.	21.	15.
9.00	841.	530.	373.	314.	278.	54.	33.	24.	13.
9.17	848.	556.	393.	332.	295.	52.	3.	25.	15.
9.33	853.	584.	414.	350.	308.	57.	33.	24.	13.
9.50	866.	617.	436.	371.	325.	58.	34.	23.	15.
9.67	875.	640.	455.	382.	340.	55.	29.	24.	11.
9.83	879.	666.	473.	398.	355.	57.	29.	24.	12.
10.00	889.	693.	488.	413.	368.	53.	30.	21.	14.
10.17	895.	715.	507.	429.	380.	55.	33.	22.	14.
10.33	903.	738.	524.	443.	394.	52.	31.	23.	14.
10.50	899.	760.	538.	456.	403.	55.	34.	23.	16.
10.67	903.	780.	550.	467.	417.	57.	32.	26.	15.
10.83	916.	800.	567.	481.	427.	62.	36.	25.	15.
11.00	916.	818.	579.	491.	435.	64.	38.	26.	16.
11.17	916.	832.	585.	499.	443.	57.	33.	25.	16.
11.33	916.	842.	592.	503.	449.	59.	33.	26.	16.
11.50	920.	854.	601.	515.	453.	65.	38.	28.	17.
11.67	920.	863.	511.	521.	459.	61.	36.	29.	18.
11.83	921.	871.	617.	526.	464.	65.	35.	27.	19.
12.00	908.	874.	616.	526.	463.	69.	41.	33.	21.
12.17	920.	881.	621.	531.	470.	64.	37.	31.	17.
12.33	920.	886.	626.	534.	472.	64.	38.	28.	17.
12.50	921.	888.	627.	532.	472.	70.	41.	30.	18.
12.67	917.	887.	626.	532.	471.	75.	41.	32.	24.
12.83	915.	889.	626.	536.	475.	76.	47.	36.	25.
13.00	913.	877.	620.	531.	468.	71.	43.	34.	21.
13.17	911.	872.	618.	526.	463.	70.	43.	34.	22.
13.33	916.	871.	617.	526.	467.	82.	52.	38.	25.
13.50	914.	858.	607.	519.	459.	78.	48.	37.	26.
13.67	908.	861.	608.	517.	459.	89.	57.	44.	29.
13.83	904.	825.	583.	498.	441.	72.	41.	33.	24.
14.00	893.	813.	577.	493.	433.	76.	44.	35.	21.
14.17	899.	787.	559.	475.	420.	64.	40.	28.	20.
14.33	909.	780.	553.	469.	417.	64.	39.	30.	21.
14.50	888.	752.	532.	452.	401.	63.	41.	31.	19.
14.67	882.	731.	519.	443.	392.	70.	44.	33.	22.
14.83	884.	731.	518.	440.	388.	90.	54.	42.	30.
15.00	866.	727.	517.	440.	387.	112.	74.	60.	43.
15.17	846.	760.	543.	464.	406.	180.	122.	100.	79.
15.33	6.	218.	168.	157.	156.	163.	111.	91.	71.
15.50	827.	646.	461.	391.	342.	110.	73.	60.	44.
15.67	12.	110.	75.	62.	61.	110.	74.	59.	44.
15.83	3.	93.	63.	50.	53.	95.	62.	50.	36.
16.00	772.	543.	389.	332.	291.	122.	80.	65.	50.
16.17	750.	555.	400.	343.	298.	156.	109.	90.	71.
16.33	5.	163.	116.	99.	89.	160.	111.	95.	77.
16.50	6.	163.	116.	100.	89.	155.	110.	92.	73.
16.67	0.	116.	82.	70.	64.	109.	78.	64.	50.
16.83	2.	68.	48.	41.	40.	72.	50.	40.	29.
17.00	2.	55.	36.	32.	28.	60.	39.	30.	21.
17.17	208.	231.	166.	149.	123.	59.	38.	31.	21.
17.33	1.	48.	32.	26.	25.	46.	32.	27.	19.
17.50	2.	59.	40.	34.	32.	58.	39.	32.	24.
17.67	9.	76.	55.	47.	42.	73.	51.	43.	33.
17.83	2.	56.	40.	36.	31.	52.	38.	32.	24.
18.00	1.	35.	29.	26.	21.	39.	24.	21.	16.
18.17	29.	38.	29.	28.	23.	37.	28.	23.	18.
18.33	98.	31.	24.	24.	19.	25.	19.	16.	13.
18.50	0.	13.	9.	9.	6.	9.	6.	5.	2.
18.67	14.	6.	5.	7.	6.	4.	6.	3.	1.
18.83	0.	5.	4.	5.	3.	3.	3.	3.	0.
19.00	0.	0.	0.	0.	0.	0.	0.	0.	0.

DATE: 24 AUG 1974 LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.67	0.	0.	0.	0.	0.	0.	0.	0.	0.
5.83	2.	3.	4.	4.	2.	5.	4.	3.	0.
6.00	3.	9.	6.	7.	6.	12.	6.	6.	1.
6.17	164.	12.	10.	9.	7.	15.	10.	6.	3.
6.33	281.	28.	18.	19.	16.	17.	13.	8.	6.
6.50	370.	45.	30.	29.	26.	21.	13.	12.	6.
6.67	445.	63.	45.	41.	35.	22.	13.	18.	6.
6.83	502.	91.	67.	59.	49.	34.	20.	14.	7.
7.00	555.	120.	88.	73.	66.	31.	19.	14.	10.
7.17	599.	147.	106.	92.	80.	34.	18.	13.	8.
7.33	638.	187.	131.	112.	100N	42.	24.	16.	10.
7.50	675.	221.	156.	130.	115.	37.	24.	18.	10.
7.67	704.	254.	181.	154.	135.	45.	24.	18.	13.
7.83	723.	297.	210.	177.	154.	47.	28.	21.	13.
8.00	744.	330.	235.	198.	175.	54.	32.	25.	16.
8.17	759.	383.	271.	228.	199.	67.	39.	31.	23.
8.33	772.	409.	289.	243.	213.	62.	38.	30.	21.
8.50	500.	270.	189.	159.	144.	65.	37.	30.	21.
8.67	126.	151.	97.	75.	76.	80.	53.	42.	28.
8.83	814.	510.	364.	303.	268.	69.	44.	32.	23.
9.00	829.	552.	390.	329.	289.	75.	46.	35.	25.
9.17	843.	564.	399.	337.	296.	64.	35.	27.	19.
9.33	854.	590.	416.	351.	309.	57.	34.	27.	16.
9.50	862.	614.	435.	370.	326.	59.	32.	24.	16.
9.67	868.	638.	452.	380.	338.	53.	32.	22.	16.
9.83	874.	669.	471.	401.	353.	56.	34.	24.	16.
10.00	881.	691.	487.	413.	367.	56.	29.	24.	12.
10.17	892.	723.	507.	433.	384.	57.	33.	26.	17.
10.33	897.	738.	522.	444.	391.	53.	33.	22.	15.
10.50	902.	760.	539.	456.	405.	57.	34.	24.	17.
10.67	904.	781.	550.	467.	416.	57.	32.	25.	15.
10.83	906.	798.	561.	480.	423.	62.	36.	25.	16.
11.00	909.	810.	574.	486.	432.	59.	32.	25.	15.
11.17	913.	830.	588.	500.	444.	62.	37.	27.	19.
11.33	[illegible]	840.	592.	506.	448.	61.	34.	27.	15.
11.50	910.	852.	602.	512.	453.	63.	38.	29.	18.
11.67	909.	859.	608.	518.	457.	66.	35.	28.	18.
11.83	909.	862.	608.	519.	461.	63.	39.	28.	17.
12.00	908.	868.	614.	524.	464.	68.	39.	29.	19.
12.17	909.	870.	616.	526.	465.	69.	36.	27.	19.
12.33	909.	877.	619.	527.	468.	71.	40.	30.	20.
12.50	897.	875.	619.	527.	467.	73.	43.	32.	22.
12.67	895.	878.	621.	530.	470.	82.	50.	37.	26.
12.83	892.	887.	627.	534.	473.	93.	57.	44.	31.
13.00	880.	894.	632.	538.	476.	112.	69.	54.	40.
13.17	876.	921.	653.	557.	492.	149.	98.	78.	57.
13.33	808.	852.	608.	519.	461.	120.	75.	61.	44.
13.50	870.	849.	601.	511.	453.	96.	60.	45.	30.
13.67	871.	831.	589.	500.	442.	91.	53.	40.	27.
13.83	866.	820.	581.	494.	437.	95.	57.	43.	29.
14.00	866.	791.	562.	479.	424.	74.	45.	32.	20.
14.17	859.	776.	550.	468.	413.	70.	39.	28.	18.
14.33	872.	756.	534.	455.	402.	65.	38.	28.	17.
14.50	863.	737.	523.	444.	393.	63.	36.	27.	16.
14.67	858.	710.	504.	429.	380.	63.	37.	27.	16.
14.83	854.	685.	486.	413.	365.	60.	34.	25.	15.
15.00	857.	663.	471.	401.	354.	60.	34.	25.	15.
15.17	852.	644.	456.	390.	344.	63.	37.	27.	17.
15.33	846.	615.	435.	370.	327.	55.	32.	23.	13.
15.50	838.	585.	417.	354.	313.	58.	33.	24.	14.
15.67	827.	559.	398.	341.	300.	64.	38.	28.	19.
15.83	821.	532.	380.	324.	283.	60.	32.	24.	16.
16.00	805.	499.	356.	303.	267.	60.	36.	26.	16.
16.17	795.	474.	339.	291.	256.	72.	45.	34.	24.
16.33	761.	477.	340.	290.	254.	105.	70.	54.	40.
16.50	762.	428.	306.	262.	231.	86.	55.	43.	31.
16.67	728.	370.	266.	228.	198.	68.	39.	30.	22.
16.83	711.	338.	242.	207.	181.	67.	42.	32.	22.
17.00	687.	318.	228.	195.	169.	80.	49.	38.	29.
17.17	668.	288.	205.	176.	152.	81.	51.	41.	31.
17.33	646.	239.	171.	147.	128.	59.	39.	29.	19.
17.50	615.	201.	143.	124.	110.	59.	39.	26.	17.
17.67	583.	168.	123.	107.	92.	59.	36.	28.	21.
17.83	547.	132.	96.	86.	74.	48.	30.	23.	17.
18.00	509.	102.	76.	66.	57.	43.	29.	19.	14.
18.17	454.	77.	54.	51.	43.	35.	24.	20.	12.
18.33	384.	58.	41.	36.	33.	38.	26.	18.	11.
18.50	295.	44.	31.	31.	25.	32.	23.	20.	14.
18.67	187.	34.	24.	21.	17.	31.	23.	18.	12.
18.83	42.	19.	17.	16.	11.	20.	15.	12.	7.
19.00	0.	2.	2.	6.	5.	2.	1.	1.	1.
19.17	0.	0.	0.	0.	0.	0.	0.	0.	0.

DATE: 25 AUG 1974 LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.67	0.	0.	0.	0.	0.	0.	0.	0.	0.
5.83	1.	2.	1.	2.	2.	2.	1.	0.	0.
6.00	3.	8.	6.	8.	6.	9.	4.	3.	0.
6.17	143.	14.	10.	12.	10.	16.	11.	8.	5.
6.33	244.	24.	17.	16.	14.	22.	11.	10.	6.
6.50	338.	41.	30.	27.	25.	25.	16.	12.	7.
6.67	412.	64.	46.	39.	34.	30.	16.	14.	9.
6.83	474.	91.	65.	56.	50.	35.	21.	16.	10.
7.00	525.	113.	81.	68.	60.	32.	18.	14.	6.
7.17	567.	150.	105.	88.	79.	39.	25.	18.	10.
7.33	609.	176.	125.	106.	93.	38.	22.	16.	9.
7.50	637.	215.	152.	129.	113.	46.	27.	20.	13.
7.67	665.	247.	176.	149.	131.	49.	29.	22.	15.
7.83	690.	278.	197.	164.	147.	45.	28.	22.	13.
8.00	715.	316.	224.	189.	166.	49.	30.	22.	13.
8.17	735.	346.	244.	204.	182.	48.	29.	21.	10.
8.33	754.	384.	274.	229.	203.	54.	35.	24.	18.
8.50	767.	416.	297.	250.	218.	54.	34.	23.	18.
8.67	779.	452.	322.	269.	239.	58.	36.	26.	19.
8.83	788.	482.	343.	288.	253.	60.	36.	27.	16.
9.00	805.	513.	364.	306.	271.	58.	36.	26.	19.
9.17	816.	546.	386.	326.	288.	60.	37.	27.	19.
9.33	824.	572.	406.	342.	301.	59.	37.	25.	16.
9.50	833.	604.	[illegible]	359.	320.	62.	35.	29.	17.
9.67	842.	628.	445.	373.	331.	60.	37.	27.	15.
9.83	848.	658.	466.	393.	348.	68.	41.	29.	18.
10.00	857.	680.	480.	408.	360.	63.	37.	30.	18.
10.17	861.	709.	501.	423.	374.	67.	40.	32.	22.
10.33	868.	726.	515.	437.	386.	65.	38.	28.	18.
10.50	866.	751.	529.	449.	397.	70.	43.	32.	21.
10.67	869.	764.	540.	458.	405.	67.	40.	30.	19.
10.83	878.	787.	556.	474.	419.	75.	45.	34.	24.
11.00	875.	798.	565.	481.	424.	73.	44.	33.	23.
11.17	882.	813.	574.	488.	433.	74.	45.	34.	24.
11.33	876.	827.	584.	497.	439.	70.	44.	34.	22.
11.50	876.	838.	593.	504.	445.	77.	46.	36.	26.
11.67	883.	845.	597.	507.	449.	75.	45.	35.	25.
11.83	880.	850.	602.	513.	453.	77.	48.	37.	24.
12.00	879.	856.	604.	517.	456.	78.	46.	37.	26.
12.17	884.	864.	608.	518.	458.	79.	48.	37.	26.
12.33	882.	865.	611.	520.	461.	77.	50.	38.	26.
12.50	878.	864.	612.	523.	462.	83.	49.	38.	28.
12.67	875.	862.	611.	521.	459.	84.	54.	42.	28.
12.83	872.	859.	608.	516.	459.	82.	51.	41.	28.
13.00	876.	858.	605.	519.	457.	84.	52.	42.	31.
13.17	874.	851.	599.	512.	453.	82.	50.	39.	30.
13.33	877.	843.	595.	507.	450.	79.	50.	37.	28.
13.50	877.	835.	590.	501.	444.	82.	52.	38.	26.
13.67	873.	815.	578.	495.	435.	77.	47.	37.	24.
13.83	871.	806.	569.	488.	430.	78.	48.	38.	25.
14.00	865.	786.	555.	473.	420.	77.	48.	35.	23.
14.17	865.	769.	547.	466.	410.	72.	47.	36.	24.
14.33	860.	754.	533.	455.	404.	79.	50.	36.	25.
14.50	856.	731.	518.	439.	390.	72.	45.	33.	25.
14.67	849.	710.	505.	428.	380.	71.	46.	33.	25.
14.83	844.	686.	487.	417.	366.	74.	46.	36.	26.
15.00	838.	658.	468.	400.	352.	69.	42.	33.	23.
15.17	826.	634.	450.	380.	338.	74.	45.	33.	24.
15.33	821.	612.	433.	368.	325.	72.	48.	35.	24.
15.50	812.	580.	411.	348.	308.	70.	47.	34.	22.
15.67	795.	550.	391.	332.	292.	70.	46.	35.	24.
15.83	791.	516.	369.	312.	275.	71.	46.	32.	20.
16.00	770.	485.	346.	294.	258.	68.	46.	34.	23.
16.17	768.	453.	324.	277.	243.	68.	47.	30.	22.
16.33	750.	418.	299.	253.	225.	64.	42.	30.	21.
16.50	732.	389.	276.	234.	207.	63.	45.	31.	21.
16.67	714.	353.	252.	213.	189.	63.	47.	28.	20.
16.83	702.	321.	229.	194.	170.	58.	45.	29.	19.
17.00	669.	285.	204.	173.	151.	63.	44.	28.	20.
17.17	637.	244.	175.	149.	132.	59.	44.	27.	19.
17.33	608.	211.	152.	131.	116.	57.	44.	26.	18.
17.50	591.	182.	130.	112.	99.	55.	41.	25.	17.
17.67	548.	151.	109.	96.	84.	48.	41.	23.	14.
17.83	505.	119.	84.	76.	67.	46.	35.	20.	15.
18.00	449.	93.	66.	58.	50.	41.	31.	20.	14.
18.17	387.	65.	46.	41.	38.	32.	28.	16.	8.
18.33	311.	43.	32.	31.	27.	32.	21.	14.	10.
18.50	221.	32.	22.	20.	17.	22.	16.	12.	6.
18.67	105.	20.	15.	15.	11.	21.	11.	10.	5.
18.83	18.	11.	8.	9.	6.	8.	8.	5.	2.
19.00	0.	0.	0.	0.	0.	0.	0.	0.	0.

DATE: 26 AUG 1974 LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.67	0.	0.	0.	0.	0.	0.	0.	0.	0.
5.83	2.	0.	1.	5.	4.	6.	1.	0.	0.
6.00	4.	5.	6.	7.	4.	9.	4.	3.	2.
6.17	96.	9.	9.	10.	7.	11.	9.	7.	1.
6.33	198.	24.	18.	18.	17.	18.	15.	11.	5.
6.50	294.	40.	31.	25.	23.	23.	17.	14.	8.
6.67	375.	62.	45.	39.	33.	38.	16.	13.	6.
6.83	444.	83.	60.	53.	48.	34.	21.	15.	8.
7.00	502.	111.	79.	67.	59.	36.	20.	17.	10.
7.17	549.	148.	104.	89.	77.	43.	25.	20.	14.
7.33	593.	180.	127.	106.	5054.	40.	26.	21.	12.
7.50	625.	211.	151.	130.	114.	45.	29.	21.	12.
7.67	656.	248.	174.	146.	189.	48.	30.	23.	12.
7.83	687.	283.	198.	167.	148.	48.	32.	23.	13.
8.00	706.	315.	223.	190.	168.	52.	35.	25.	15.
8.17	735.	348.	248.	211.	184.	50.	29.	24.	16.
8.33	752.	387.	272.	233.	203.	56.	35.	26.	17.
8.50	772.	420.	296.	248.	219.	51.	32.	26.	16.
8.67	789.	455.	321.	272.	242.	60.	38.	28.	17.
8.83	803.	486.	345.	291.	256.	57.	35.	27.	17.
9.00	817.	520.	368.	312.	275.	61.	38.	28.	18.
9.17	826.	547.	387.	328.	289.	64.	36.	28.	19.
9.33	838.	583.	413.	352.	309.	65.	41.	31.	20.
9.50	846.	609.	431.	367.	324.	67.	41.	5.	21.
9.67	854.	636.	450.	383.	338.	65.	39.	30.	19.
9.83	859.	661.	469.	399.	351.	66.	39.	30.	19.
10.00	863.	686.	486.	413.	363.	65.	39.	32.	20.
10.17	861.	707.	498.	424.	376.	70.	40.	30.	19.
10.33	873.	729.	515.	438.	386.	68.	40.	31.	20.
10.50	877.	753.	532.	453.	400.	72.	43.	33.	22.
10.67	876.	766.	542.	464.	408.	74.	42.	32.	22.
10.83	875.	779.	552.	473.	417.	76.	43.	33.	23.
11.00	877.	801.	566.	483.	427.	77.	47.	36.	24.
11.17	887.	813.	578.	492.	434.	76.	47.	33.	22.
11.33	890.	825.	585.	501.	442.	70.	43.	32.	19.
11.50	889.	839.	593.	507.	448.	76.	46.	35.	23.
11.67	889.	848.	599.	511.	451.	73.	44.	34.	21.
11.83	894.	855.	605.	516.	455.	73.	44.	33.	21.
12.00	895.	857.	607.	520.	459.	75.	45.	35.	22.
12.17	886.	862.	609.	519.	458.	80.	45.	35.	24.
12.33	888.	864.	612.	521.	460.	77.	46.	36.	23.
12.50	890.	868.	613.	524.	463.	78.	49.	37.	24.
12.67	889.	862.	610.	521.	462.	77.	48.	37.	25.
12.83	891.	864.	613.	523.	460.	77.	45.	35.	25.
13.00	884.	854.	606.	519.	459.	75.	47.	34.	21.
13.17	889.	851.	602.	514.	453.	76.	45.	35.	23.
13.33	889.	845.	600.	513.	451.	72.	45.	33.	21.
13.50	892.	834.	591.	505.	445.	76.	44.	35.	23.
13.67	890.	819.	579.	496.	437.	74.	43.	33.	21.
13.83	893.	809.	574.	491.	432.	70.	42.	31.	20.
14.00	881.	790.	562.	482.	424.	78.	45.	33.	22.
14.17	873.	773.	548.	468.	412.	74.	43.	33.	22.
14.33	867.	751.	533.	455.	401.	76.	44.	34.	24.
14.50	871.	733.	521.	447.	394.	71.	44.	32.	20.
14.67	863.	710.	506.	434.	380.	69.	42.	34.	22.
14.83	860.	688.	490.	421.	369.	72.	42.	32.	22.
15.00	854.	665.	471.	406.	354.	67.	43.	31.	21.
15.17	839.	634.	452.	385.	339.	70.	40.	32.	18.
15.33	839.	607.	434.	370.	327.	67.	37.	30.	17.
15.50	835.	580.	415.	353.	311.	62.	38.	29.	19.
15.67	822.	552.	392.	337.	293.	60.	39.	27.	18.
15.83	806.	521.	369.	316.	279.	61.	36.	28.	19.
16.00	793.	486.	346.	298.	260.	59.	35.	28.	18.
16.17	787.	457.	324.	280.	245.	60.	35.	27.	15.
16.33	765.	420.	300.	257.	226.	58.	34.	26.	14.
16.50	756.	420.	300.	257.	226.	58.	34.	26.	14.
16.67	743.	354.	252.	216.	191.	50.	31.	23.	16.
16.83	730.	323.	229.	198.	174.	51.	29.	22.	16.
17.00	704.	283.	206.	176.	154.	52.	31.	22.	13.
17.17	669.	246.	178.	156.	133.	48.	28.	23.	13.
17.33	639.	217.	155.	133.	117.	51.	30.	23.	16.
17.50	596.	180.	127.	112.	98.	44.	26.	20.	14.
17.67	568.	146.	104.	92.	82.	42.	25.	18.	12.
17.83	517.	117.	83.	75.	66.	40.	24.	18.	13.
18.00	466.	90.	65.	57.	48.	34.	21.	17.	11.
18.17	409.	61.	45.	39.	37.	30.	18.	15.	7.
18.33	326.	41.	29.	29.	24.	23.	15.	14.	8.
18.50	224.	24.	16.	16.	17.	19.	14.	9.	4.
18.67	106.	17.	11.	10.	11.	16.	11.	7.	6.
18.83	14.	6.	6.	5.	6.	4.	4.	3.	2.
19.00	0.	0.	0.	0.	0.	0.	0.	0.	0.

DATE: 30 AUG 1974 LOCATION: 857104

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.67	0.	0.	0.	0.	0.	0.	0.	0.	0.
5.83	1.	0.	1.	3.	0.	4.	3.	2.	0.
6.00	2.	5.	4.	6.	1.	7.	2.	2.	1.
6.17	71.	19.	15.	15.	8.	22.	13.	12.	11.
6.33	169.	37.	27.	26.	17.	32.	22.	-99.	15.
6.50	260.	54.	40.	37.	27.	45.	28.	25.	21.
6.67	322.	73.	51.	45.	36.	49.	34.	28.	22.
6.83	372.	85.	63.	55.	44.	48.	33.	25.	17.
7.00	433.	111.	79.	71.	58.	54.	32.	25.	19.
7.17	506.	138.	99.	86.	71.	53.	32.	25.	18.
7.33	550.	170.	122.	104.	86.	54.	32.	26.	19.
7.50	589.	203.	146.	124.	104.	61.	38.	27.	19.
7.67	620.	235.	170.	144.	123.	60.	37.	28.	22.
7.83	645.	270.	194.	165.	142.	69.	40.	33.	22.
8.00	666.	306.	218.	185.	157.	69.	40.	32.	23.
8.17	692.	341.	244.	207.	178.	70.	42.	35.	24.
8.33	710.	373.	267.	227.	194.	71.	45.	34.	25.
8.50	728.	406.	298.	248.	211.	75.	46.	36.	22.
8.67	743.	446.	316.	270.	232.	79.	50.	37.	26.
8.83	763.	476.	339.	290.	249.	82.	50.	39.	28.
9.00	770.	509.	364.	312.	267.	83.	51.	39.	27.
9.17	787.	540.	387.	329.	282.	83.	50.	37.	26.
9.33	808.	572.	408.	352.	302.	79.	50.	37.	26.
9.50	823.	603.	430.	368.	317.	78.	47.	36.	25.
9.67	834.	634.	450.	386.	333.	80.	48.	37.	25.
9.83	846.	660.	470.	405.	349.	83.	49.	37.	26.
10.00	860.	690.	490.	422.	364.	84.	52.	39.	28.
10.17	864.	712.	507.	435.	376.	83.	50.	39.	28.
10.33	873.	740.	526.	452.	389.	86.	50.	38.	28.
10.50	880.	761.	541.	465.	401.	82.	49.	39.	28.
10.67	882.	780.	553.	474.	411.	84.	51.	37.	26.
10.83	880.	794.	563.	486.	419.	87.	51.	39.	28.
11.00	886.	807.	575.	497.	430.	84.	53.	39.	27.
11.17	892.	826.	588.	506.	438.	83.	50.	39.	27.
11.33	891.	832.	593.	511.	444.	81.	49.	38.	25.
11.50	897.	849.	604.	519.	450.	83.	49.	38.	26.
11.67	888.	856.	609.	524.	455.	84.	53.	38.	24.
11.83	887.	860.	613.	527.	456.	86.	51.	40.	28.
12.00	894.	866.	617.	530.	460.	78.	52.	40.	27.
12.17	890.	865.	619.	531.	459.	81.	51.	37.	26.
12.33	890.	873.	622.	536.	464.	86.	51.	40.	27.
12.50	887.	870.	619.	533.	461.	82.	52.	36.	28.
12.67	888.	869.	619.	532.	462.	83.	50.	39.	27.
12.83	893.	865.	617.	528.	459.	85.	52.	39.	26.
13.00	890.	862.	614.	529.	458.	83.	50.	39.	28.
13.17	891.	856.	610.	522.	454.	86.	51.	37.	27.
13.33	888.	842.	601.	518.	447.	85.	51.	40.	26.
13.50	883.	832.	594.	512.	442.	88.	54.	40.	28.
13.67	862.	816.	583.	503.	435.	93.	57.	43.	30.
13.83	859.	801.	574.	492.	425.	93.	58.	45.	30.
14.00	849.	789.	561.	483.	418.	97.	59.	47.	34.
14.17	830.	765.	548.	471.	406.	101.	61.	48.	35.
14.33	827.	745.	534.	460.	395.	103.	62.	47.	34.
14.50	819.	726.	518.	445.	386.	101.	64.	49.	33.
14.67	810.	700.	501.	430.	371.	102.	61.	47.	33.
14.83	804.	676.	484.	416.	360.	97.	62.	48.	31.
15.00	791.	648.	465.	400.	344.	98.	60.	46.	32.
15.17	785.	624.	447.	383.	330.	95.	59.	45.	31.
15.33	781.	597.	428.	367.	318.	94.	60.	46.	32.
15.50	774.	572.	410.	353.	303.	91.	58.	44.	30.
15.67	766.	539.	386.	332.	287.	88.	57.	44.	29.
15.83	755.	509.	366.	313.	269.	87.	54.	41.	28.
16.00	740.	475.	341.	295.	253.	85.	54.	40.	28.
16.17	721.	444.	318.	272.	234.	81.	52.	40.	26.
16.33	695.	404.	290.	251.	213.	80.	51.	40.	27.
16.50	688.	373.	268.	232.	197.	74.	47.	37.	25.
16.67	675.	341.	245.	211.	179.	70.	46.	35.	24.
16.83	658.	304.	220.	191.	161.	67.	42.	34.	22.
17.00	625.	263.	191.	166.	141.	60.	40.	29.	20.
17.17	598.	232.	166.	143.	121.	58.	38.	28.	19.
17.33	564.	196.	141.	122.	104.	54.	37.	28.	19.
17.50	523.	162.	117.	101.	85.	53.	33.	26.	16.
17.67	490.	135.	97.	85.	71.	47.	31.	23.	15.
17.83	427.	100.	73.	66.	53.	46.	29.	22.	14.
18.00	332.	68.	52.	44.	38.	36.	25.	19.	14.
18.17	270.	50.	35.	32.	25.	31.	21.	18.	13.
18.33	204.	31.	23.	23.	15.	24.	17.	16.	9.
18.50	133.	19.	14.	13.	9.	20.	12.	11.	8.
18.67	58.	10.	6.	9.	5.	11.	8.	7.	5.
18.83	0.	0.	0.	0.	0.	0.	0.	0.	0.

DATE: 31 AUG 1974 LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.83	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.00	2.	0.	0.	2.	0.	7.	3.	3.	2.
6.17	17.	8.	5.	5.	2.	12.	5.	5.	5.
6.33	61.	20.	15.	15.	11.	22.	14.	12.	8.
6.50	205.	37.	27.	23.	19.	32.	21.	16.	13.
6.67	270.	57.	43.	40.	33.	44.	29.	24.	17.
6.83	285.	85.	61.	57.	44.	58.	39.	34.	24.
7.00	392.	124.	89.	76.	62.	72.	48.	38.	29.
7.17	447.	153.	109.	93.	77.	71.	49.	41.	30.
7.33	488.	178.	130.	113.	92.	81.	51.	42.	30.
7.50	534.	215.	152.	132.	111.	83.	52.	45.	31.
7.67	569.	236.	169.	144.	123.	74.	49.	39.	26.
7.83	600.	269.	190.	163.	139.	75.	49.	38.	25.
8.00	627.	295.	213.	182.	154.	71.	44.	36.	25.
8.17	652.	332.	238.	203.	173.	80.	49.	37.	26.
8.33	670.	367.	260.	221.	190.	82.	49.	36.	25.
8.50	695.	403.	287.	248.	208.	84.	53.	39.	27.
8.67	716.	435.	309.	261.	225.	82.	52.	40.	28.
8.83	734.	471.	333.	283.	245.	87.	54.	40.	27.
9.00	750.	501.	358.	306.	262.	90.	51.	40.	28.
9.17	762.	534.	381.	325.	278.	94.	53.	41.	30.
9.33	775.	561.	398.	340.	294.	90.	54.	42.	28.
9.50	780.	589.	420.	360.	310.	95.	59.	45.	32.
9.67	785.	618.	441.	378.	326.	96.	59.	44.	30.
9.83	800.	646.	459.	394.	341.	104.	61.	47.	34.
10.00	801.	669.	475.	406.	351.	103.	60.	47.	33.
10.17	805.	692.	494.	424.	367.	103.	61.	47.	34.
10.33	816.	716.	509.	437.	380.	103.	63.	47.	31.
10.50	822.	737.	525.	452.	389.	109.	63.	48.	35.
10.67	811.	751.	536.	457.	398.	113.	-99.	53.	34.
10.83	799.	765.	544.	465.	404.	124.	76.	57.	39.
11.00	811.	787.	556.	478.	417.	118.	72.	57.	40.
11.17	819.	799.	569.	488.	422.	118.	73.	54.	39.
11.33	825.	816.	578.	497.	430.	117.	71.	54.	36.
11.50	828.	824.	586.	502.	436.	120.	71.	55.	37.
11.67	837.	838.	595.	510.	445.	122.	71.	56.	36.
11.83	827.	829.	597.	510.	445.	118.	71.	56.	38.
12.00	822.	846.	599.	514.	447.	127.	79.	59.	43.
12.17	813.	844.	599.	513.	449.	130.	80.	61.	41.
12.33	810.	844.	600.	513.	447.	127.	80.	61.	41.
12.50	806.	841.	601.	513.	447.	128.	80.	61.	43.
12.67	806.	840.	597.	510.	444.	131.	78.	62.	43.
12.83	810.	840.	596.	510.	445.	128.	77.	59.	42.
13.00	813.	833.	596.	510.	444.	131.	79.	62.	42.
13.17	812.	830.	591.	507.	439.	127.	77.	59.	39.
13.33	807.	819.	584.	500.	435.	126.	75.	57.	41.
13.50	804.	811.	577.	493.	429.	121.	76.	58.	39.
13.67	800.	793.	565.	485.	422.	121.	73.	57.	41.
13.83	799.	784.	557.	476.	415.	122.	73.	56.	38.
14.00	793.	764.	546.	467.	406.	120.	73.	57.	40.
14.17	763.	735.	522.	446.	389.	126.	76.	59.	41.
14.33	773.	725.	515.	443.	385.	120.	73.	58.	41.
14.50	774.	701.	503.	430.	372.	118.	70.	54.	37.
14.67	774.	679.	487.	418.	351.	113.	68.	53.	37.
14.83	758.	655.	468.	402.	348.	112.	67.	51.	36.
15.00	761.	634.	452.	387.	336.	108.	66.	49.	32.
15.17	751.	606.	432.	372.	320.	107.	66.	49.	34.
15.33	746.	582.	416.	358.	308.	101.	64.	47.	33.
15.50	737.	551.	392.	338.	290.	96.	61.	45.	32.
15.67	727.	520.	371.	318.	274.	90.	57.	43.	30.
15.83	719.	489.	350.	301.	260.	91.	55.	42.	27.
16.00	703.	459.	329.	281.	242.	87.	56.	42.	27.
16.17	694.	425.	305.	261.	226.	84.	50.	40.	25.
16.33	679.	391.	282.	242.	207.	79.	50.	37.	23.
16.50	657.	357.	257.	219.	188.	77.	48.	36.	22.
16.67	648.	325.	231.	200.	172.	72.	43.	34.	20.
16.83	625.	288.	209.	180.	153.	70.	43.	31.	20.
17.00	604.	256.	183.	157.	135.	63.	42.	32.	19.
17.17	566.	220.	158.	135.	114.	63.	38.	29.	20.
17.33	549.	191.	138.	120.	101.	57.	37.	27.	17.
17.50	507.	157.	113.	101.	84.	53.	35.	28.	16.
17.67	464.	129.	91.	81.	66.	51.	35.	25.	17.
17.83	419.	102.	72.	65.	53.	47.	33.	24.	18.
18.00	357.	78.	58.	51.	41.	49.	34.	26.	17.
18.17	280.	67.	48.	42.	35.	58.	34.	29.	20.
18.33	208.	49.	37.	30.	26.	42.	31.	24.	20.
18.50	121.	28.	22.	19.	14.	29.	21.	17.	12.
18.67	15.	16.	14.	13.	9.	20.	15.	11.	10.
18.83	0.	10.	7.	11.	5.	9.	7.	8.	7.
19.00	0.	0.	0.	0.	0.	0.	0.	0.	0.

DATE: 01 SEP 1974 LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.83	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.00	2.	0.	0.	1.	0.	0.	3.	1.	0.
6.17	3.	5.	8.	2.	0.	6.	4.	3.	2.
6.33	4.	13.	9.	8.	6.	12.	10.	9.	5.
6.50	3.	18.	16.	15.	9.	24.	16.	14.	10.
6.67	3.	40.	31.	25.	22.	42.	31.	25.	22.
6.83	6.	60.	39.	39.	30.	61.	44.	36.	29.
7.00	65.	71.	52.	45.	37.	67.	47.	38.	30.
7.17	7.	81.	56.	48.	43.	84.	56.	49.	37.
7.33	33.	124.	90.	74.	66.	122.	84.	69.	56.
7.50	382.	242.	173.	151.	125.	147.	100.	87.	68.
7.67	413.	294.	212.	184.	152.	171.	118.	102.	82.
7.83	172.	237.	169.	142.	125.	181.	124.	106.	85.
8.00	14.	174.	122.	102.	91.	169.	117.	97.	77.
8.17	273.	282.	202.	174.	149.	164.	112.	96.	76.
8.33	21.	178.	122.	102.	93.	171.	115.	98.	75.
8.50	341.	334.	236.	197.	167.	181.	123.	103.	82.
8.67	128.	252.	182.	152.	139.	179.	12[illegible].	101.	80.
8.83	197.	288.	204.	171.	15[illegible].	172.	121.	98.	77.
9.00	66.	224.	154.	126.	118.	167.	125.	101.	[illegible]9.
9.17	556.	478.	339.	284.	250.	162.	104.	81.	60.
9.33	655.	557.	394.	331.	292.	160.	101.	78.	58.
9.50	453.	451.	316.	266.	240.	161.	101.	77.	57.
9.67	665.	586.	417.	350.	307.	152.	95.	74.	51.
9.83	677.	606.	429.	362.	320.	146.	90.	71.	50.
10.00	696.	633.	449.	378.	332.	145.	89.	70.	47.
10.17	649.	646.	457.	381.	338.	179.	113.	90.	65.
10.33	714.	692.	490.	414.	366.	158.	100.	77.	54.
10.50	723.	707.	501.	423.	372.	149.	95.	71.	49.
10.67	748.	719.	508.	430.	381.	139.	84.	65.	45.
10.83	757.	738.	522.	439.	389.	134.	82.	62.	42.
11.00	754.	754.	534.	450.	399.	144.	85.	65.	46.
11.17	758.	762.	539.	454.	403.	141.	85.	66.	45.
11.33	772.	781.	552.	465.	413.	139.	83.	64.	43.
11.50	772.	790.	560.	472.	419.	139.	85.	65.	43.
11.67	767.	797.	563.	475.	423.	144.	87.	65.	46.
11.83	784.	812.	576.	485.	430.	140.	86.	63.	43.
12.00	789.	817.	579.	489.	434.	136.	83.	63.	44.
12.17	790.	824.	582.	493.	437.	137.	82.	63.	43.
12.33	781.	822.	580.	489.	436.	142.	86.	64.	44.
12.50	789.	818.	579.	489.	437.	134.	82.	62.	41.
12.67	799.	821.	580.	489.	436.	130.	78.	57.	38.
12.83	801.	825.	583.	491.	437.	128.	78.	60.	41.
13.00	792.	811.	573.	484.	431.	130.	78.	58.	40.
13.17	789.	804.	569.	480.	427.	130.	78.	58.	40.
13.33	803.	826.	585.	493.	440.	144.	91.	70.	50.
13.50	795.	797.	566.	478.	424.	134.	83.	64.	44.
13.67	794.	780.	552.	468.	416.	130.	79.	59.	41.
13.83	795.	765.	540.	456.	407.	119.	72.	53.	37.
14.00	784.	741.	524.	442.	392.	115.	69.	53.	34.
14.17	781.	720.	511.	433.	383.	111.	67.	51.	34.
14.[illegible]3	786.	708.	500.	423.	378.	112.	66.	49.	33.
14.50	781.	689.	486.	410.	365.	107.	67.	50.	33.
14.67	774.	663.	471.	398.	352.	107.	64.	47.	31.
14.83	768.	639.	451.	381.	340.	102.	61.	46.	31.
15.00	753.	610.	434.	366.	3[illegible]3.	100.	62.	46.	31.
15.17	754.	589.	417.	352.	[illegible]13.	99.	63.	46.	30.
15.33	740.	561.	398.	337.	2[illegible]9.	101.	63.	45.	30.
15.50	713.	526.	374.	316.	280.	100.	62.	45.	31.
15.67	711.	502.	358.	304.	269.	102.	63.	45.	31.
15.83	674.	461.	327.	277.	243.	103.	68.	50.	34.
16.00	687.	455.	324.	273.	240.	104.	68.	48.	33.
16.17	632.	400.	283.	241.	214.	101.	67.	46.	32.
16.33	577.	353.	251.	214.	188.	102.	68.	48.	34.
16.50	582.	337.	240.	203.	178.	103.	67.	48.	35.
16.67	584.	308.	220.	187.	164.	94.	65.	44.	31.
16.83	571.	283.	201.	172.	149.	89.	61.	41.	28.
17.00	546.	246.	176.	151.	131.	86.	61.	41.	29.
17.17	513.	212.	151.	128.	114.	77.	58.	38.	25.
17.33	457.	167.	119.	102.	91.	68.	50.	31.	21.
17.50	411.	136.	95.	83.	73.	59.	43.	27.	18.
17.67	403.	115.	83.	71.	62.	56.	42.	27.	18.
17.83	156.	54.	38.	32.	29.	39.	27.	19.	12.
18.00	241.	47.	34.	31.	25.	32.	22.	15.	11.
18.17	131.	31.	22.	22.	17.	27.	18.	14.	10.
18.33	18.	19.	13.	13.	10.	22.	14.	12.	9.
18.50	1.	9.	8.	10.	7.	12.	9.	7.	4.
18.67	1.	5.	4.	7.	4.	8.	5.	5.	3.
18.83	0.	0.	0.	0.	0.	0.	0.	0.	0.

ORIGINAL PAGE IS
OF POOR QUALITY

DATE: 02 SEP 1974 LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.83	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.00	2.	2.	1.	2.	1.	2.	1.	3.	0.
6.17	3.	6.	5.	8.	5.	11.	7.	5.	4.
6.33	4.	14.	11.	14.	7.	18.	13.	12.	7.
6.50	3.	27.	18.	18.	13.	26.	21.	17.	13.
6.67	3.	38.	28.	25.	21.	41.	28.	24.	19.
6.83	3.	46.	31.	28.	23.	45.	31.	29.	21.
7.00	3.	65.	45.	40.	35.	65.	45.	40.	31.
7.17	4.	82.	61.	51.	44.	85.	61.	50.	41.
7.33	5.	100.	73.	60.	53.	101.	71.	60.	49.
7.50	5.	113.	79.	68.	61.	113.	80.	67.	54.
7.67	12.	128.	91.	76.	69.	128.	88.	75.	60.
7.83	33.	156.	110.	91.	82.	147.	100.	83.	67.
8.00	279.	268.	192.	168.	140.	164.	111.	92.	73.
8.17	20.	168.	116.	95.	88.	162.	108.	90.	70.
8.33	362.	315.	224.	185.	163.	157.	105.	86.	66.
8.50	492.	401.	286.	238.	207.	176.	119.	94.	74.
8.67	225.	292.	206.	170.	153.	176.	116.	94.	74.
8.83	260.	329.	232.	193.	174.	185.	123.	98.	77.
9.00	597.	503.	357.	297.	260.	170.	111.	85.	65.
9.17	643.	552.	391.	328.	289.	178.	116.	91.	68.
9.33	663.	574.	407.	342.	302.	182.	117.	92.	68.
9.50	662.	615.	436.	366.	323.	202.	131.	104.	78.
9.67	665.	680.	481.	403.	353.	-99.	164.	133.	-99.
9.83	56.	364.	281.	248.	234.	309.	208.	174.	138.
10.00	333.	577.	405.	336.	308.	346.	236.	191.	151.
10.17	384.	643.	449.	372.	336.	342.	232.	189.	151.
10.33	4.	314.	219.	182.	167.	314.	218.	181.	145.
10.50	10.	263.	180.	148.	138.	254.	174.	143.	113.
10.67	534.	575.	415.	359.	325.	233.	154.	122.	93.
10.83	738.	808.	574.	480.	427.	237.	154.	120.	91.
11.00	745.	827.	585.	495.	437.	236.	152.	122.	92.
11.17	298.	576.	403.	331.	293.	318.	216.	171.	133.
11.33	12.	250.	172.	140.	136.	239.	159.	135.	104.
11.50	2.	273.	187.	152.	148.	280.	187.	156.	119.
11.67	586.	817.	580.	491.	444.	307.	204.	161.	126.
11.83	765.	935.	662.	558.	496.	288.	190.	150.	116.
12.00	764.	949.	673.	566.	503.	296.	197.	157.	121.
12.17	760.	939.	665.	560.	498.	284	189.	148.	114.
12.33	708.	917.	656.	556.	498.	302.	202.	161.	125.
12.50	741.	894.	632.	534.	474.	256.	166.	131.	98.
12.67	711.	866.	612.	516.	456.	237.	156.	123.	91.
12.83	715.	854.	607.	512.	452.	217.	142.	109.	80.
13.00	747.	833.	588.	498.	443.	200.	128.	97.	68.
13.17	708.	842.	586.	488.	427.	243.	159.	124.	92.
13.33	5.	224.	153.	122.	125.	233.	153.	125.	93.
13.50	732.	865.	614.	519.	460.	262.	175.	135.	102.
13.67	367.	639.	443.	364.	324.	345.	239.	189.	150.
13.83	186.	584.	412.	347.	314.	413.	287.	233.	188.
14.00	164.	529.	379.	326.	299.	369.	255.	204.	164.
14.17	258.	560.	401.	343.	311.	339.	235.	185.	148.
14.33	696.	740.	526.	441.	393.	217.	146.	109.	81.
14.50	735.	683.	484.	408.	363.	155.	104.	69.	49.
14.67	724.	647.	461.	386.	345.	144.	97.	63.	44.
14.83	722.	630.	446.	376.	334.	143.	97.	60.	41.
15.00	727.	607.	429.	360.	323.	138.	95.	57.	40.
15.17	713.	581.	412.	344.	308.	135.	94.	57.	40.
15.33	698.	552.	393.	329.	294.	137.	97.	57.	40.
15.50	691.	522.	371.	312.	278.	135.	96.	55.	39.
15.67	684.	501.	356.	300.	267.	137.	102.	57.	39.
15.83	656.	466.	330.	278.	247.	136.	103.	56.	39.
16.00	654.	443.	315.	264.	235.	138.	106.	56.	39.
16.17	616.	406.	289.	243.	214.	139.	108.	59.	39.
16.33	608.	371.	262.	223.	196.	131.	103.	53.	35.
16.50	592.	339.	239.	204.	178.	124.	101.	48.	35.
16.67	577.	302.	216.	183.	160.	121.	98.	45.	30.
16.83	546.	266.	191.	161.	141.	112.	92.	44.	30.
17.00	505.	229.	163.	140.	120.	105.	88.	39.	27.
17.17	478.	197.	142.	120.	104.	99.	80.	37.	26.
17.33	441.	166.	119.	101.	89.	91.	74.	33.	22.
17.50	405.	134.	97.	83.	72.	83.	67.	31.	22.
17.67	361.	107.	74.	66.	57.	68.	54.	27.	19.
17.83	311.	82.	57.	48.	45.	61.	46.	24.	17.
18.00	239.	55.	41.	34.	32.	49.	34.	22.	13.
18.17	186.	41.	28.	24.	23.	38.	27.	17.	12.
18.33	101.	23.	18.	17.	12.	24.	18.	14.	8.
18.50	29.	13.	7.	9.	7.	12.	8.	8.	5.
18.67	5.	0.	2.	1.	1.	1.	1.	1.	1.
18.83	0.	0.	0.	3.	0.	1.	0.	0.	0.
19.00	0.	0.	0.	0.	0.	0.	0.	0.	0.

DATE: 03 SEP 1974 LOCATION: 85710A

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.83	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.00	3.	0.	0.	0.	0.	0.	0.	0.	0.
6.17	3.	3.	4.	3.	3.	5.	3.	2.	3.
6.33	5.	10.	8.	10.	7.	16.	8.	7.	6.
6.50	35.	20.	16.	15.	10.	24.	16.	14.	8.
6.67	17.	33.	24.	22.	17.	38.	25.	21.	15.
6.83	206.	62.	45.	41.	32.	50.	34.	27.	20.
7.00	225.	88.	65.	58.	48.	71.	45.	37.	29.
7.17	280.	116.	84.	74.	62.	77.	53.	42.	32.
7.33	42.	81.	57.	47.	46.	76.	52.	42.	29.
7.50	72.	101.	70.	57.	57.	92.	61.	48.	34.
7.67	6.	87.	58.	46.	50.	97.	62.	48.	36.
7.83	385.	220.	158.	135.	113.	116.	74.	57.	43.
8.00	11.	110.	76.	60.	59.	117.	78.	62.	47.
8.17	14.	155.	105.	84.	83.	155.	103.	84.	65.
8.33	9.	181.	129.	108.	97.	182.	126.	108.	86.
8.50	6.	228.	160.	131.	119.	222.	158.	132.	104.
8.67	81.	199.	134.	106.	101.	178.	121.	97.	74.
8.83	566.	458.	320.	267.	232.	184.	109.	82.	61.
9.00	614.	471.	332.	278.	244.	170.	95.	67.	47.
9.17	616.	493.	350.	292.	256.	168.	96.	66.	45.
9.33	644.	528.	374.	314.	275.	173.	97.	67.	46.
9.50	649.	549.	390.	327.	286.	178.	101.	67.	45.
9.67	683.	590.	418.	349.	309.	183.	102.	67.	46.
9.83	693.	611.	434.	364.	321.	193.	105.	68.	47.
10.00	702.	635.	449.	375.	332.	196.	107.	69.	48.
10.17	714.	659.	467.	393.	347.	202.	114.	70.	47.
10.33	723.	685.	484.	407.	359.	208.	113.	70.	48.
10.50	732.	700.	497.	416.	369.	210.	116.	68.	47.
10.67	745.	722.	509.	428.	381.	210.	118.	69.	47.
10.83	748.	743.	525.	443.	392.	214.	121.	70.	48.
11.00	755.	759.	536.	452.	402.	216.	123.	71.	48.
11.17	758.	773.	547.	461.	410.	219.	126.	73.	49.
11.33	761.	784.	555.	466.	414.	223.	129.	73.	51.
11.50	753.	793.	561.	473.	420.	229.	138.	77.	52.
11.67	754.	803.	566.	477.	424.	235.	139.	79.	54.
11.83	742.	803.	568.	480.	426.	237.	143.	81.	56.
12.00	736.	807.	573.	483.	426.	249.	153.	87.	59.
12.17	720.	821.	580.	490.	434.	270.	168.	101.	72.
12.33	722.	837.	593.	500.	441.	281.	179.	109.	78.
12.50	728.	827.	587.	497.	439.	261.	166.	99.	71.
12.67	726.	832.	588.	496.	438.	270.	174.	103.	75.
12.83	729.	802.	568.	479.	423.	239.	157.	87.	60.
13.00	739.	797.	565.	478.	423.	236.	159.	83.	57.
13.17	754.	795.	564.	473.	420.	232.	155.	79.	55.
13.33	761.	793.	563.	471.	418.	231.	153.	76.	53.
13.50	760.	779.	554.	466.	412.	223.	155.	73.	50.
13.67	768.	772.	549.	463.	410.	223.	156.	73.	50.
13.83	768.	756.	537.	453.	402.	224.	161.	70.	48.
14.00	765.	742.	526.	442.	392.	223.	162.	70.	49.
14.17	747.	714.	508.	427.	379.	221.	164.	67.	49.
14.33	751.	702.	497.	420.	370.	225.	171.	67.	48.
14.50	741.	675.	481.	406.	358.	222.	168.	66.	46.
14.67	746.	663.	471.	395.	351.	223.	173.	64.	44.
14.83	724.	632.	448.	377.	334.	226.	176.	64.	45.
15.00	721.	611.	435.	367.	324.	227.	179.	65.	46.
15.17	718.	586.	417.	350.	309.	208.	176.	51.	32.
15.33	715.	556.	397.	335.	295.	226.	185.	60.	41.
15.50	702.	530.	378.	319.	281.	228.	185.	60.	43.
15.67	681.	498.	355.	300.	265.	232.	189.	61.	43.
15.83	669.	468.	333.	281.	246.	231.	187.	59.	43.
16.00	658.	444.	317.	267.	235.	231.	189.	61.	42.
16.17	635.	411.	294.	247.	217.	228.	186.	60.	42.
16.33	621.	388.	278.	235.	207.	233.	190.	64.	45.
16.50	595.	365.	261.	220.	192.	238.	189.	69.	50.
16.67	540.	334.	238.	201.	174.	225.	180.	73.	55.
16.83	155.	159.	111.	90.	85.	131.	96.	60.	44.
17.00	155.	149.	105.	86.	76.	116.	87.	53.	40.
17.17	207.	155.	109.	91.	80.	126.	93.	55.	42.
17.33	157.	133.	95.	79.	71.	118.	86.	57.	44.
17.50	31.	88.	63.	51.	45.	85.	61.	49.	37.
17.67	0.	47.	33.	26.	22.	44.	32.	25.	20.
17.83	0.	36.	24.	22.	16.	34.	22.	20.	14.
18.00	0.	25.	19.	15.	13.	25.	16.	15.	11.
18.17	0.	12.	7.	6.	4.	8.	8.	6.	3.
18.33	0.	0.	0.	0.	0.	0.	0.	0.	0.

ORIGINAL PAGE IS
OF POOR QUALITY

HOURLY AVERAGE FLUX

Headings correspond to flux data tables.

LOCATION: 85710A
DATE: 10 AUG 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.00	173.	33.	24.	21.	17.	14.	8.	5.	5.
7.00	677.	225.	161.	139.	119.	49.	28.	20.	17.
8.00	798.	430.	304.	258.	227.	60.	35.	25.	20.
9.00	860.	618.	435.	371.	328.	66.	38.	28.	23.
10.00	901.	766.	539.	461.	408.	66.	39.	28.	21.
11.00	929.	869.	611.	523.	463.	65.	37.	26.	20.
12.00	933.	910.	639.	549.	485.	68.	40.	29.	22.
13.00	936.	888.	625.	537.	474.	44.	40.	18.	15.
14.00	907.	808.	565.	485.	428.	76.	47.	33.	25.
15.00	570.	472.	324.	267.	229.	80.	66.	46.	30.
16.00	374.	310.	220.	188.	166.	117.	87.	59.	47.
17.00	626.	258.	181.	156.	136.	94.	94.	39.	31.
18.00	453.	72.	55.	47.	40.	44.	41.	14.	11.
19.00	28.	2.	3.	3.	2.	6.	3.	2.	2.
TOTAL	9159.	6651.	4586.	4007.	3522.	847.	603.	371.	289.

LOCATION: 85710A
DATE: 11 AUG 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.00	176.	32.	23.	20.	17.	12.	7.	5.	4.
7.00	683.	224.	159.	137.	117.	48.	26.	19.	16.
8.00	812.	430.	303.	258.	226.	54.	29.	21.	16.
9.00	875.	619.	435.	373.	328.	62.	34.	24.	19.
10.00	902.	770.	541.	464.	409.	72.	41.	29.	22.
11.00	922.	866.	609.	523.	462.	73.	42.	28.	22.
12.00	926.	912.	641.	551.	486.	83.	50.	33.	26.
13.00	910.	875.	615.	529.	466.	84.	54.	33.	26.
14.00	876.	800.	564.	485.	425.	116.	88.	49.	39.
15.00	848.	644.	455.	391.	344.	108.	107.	39.	31.
16.00	746.	451.	321.	277.	243.	130.	147.	41.	33.
17.00	591.	234.	167.	145.	126.	118.	121.	33.	26.
18.00	197.	46.	35.	30.	27.	46.	33.	16.	13.
19.00	21.	1.	2.	2.	2.	5.	3.	1.	2.
TOTAL	9484.	6904.	4870.	4185.	3679.	1012.	780.	372.	295.

LOCATION: 85710A
DATE: 12 AUG 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.00	173.	29.	21.	18.	15.	12.	6.	4.	3.
7.00	688.	224.	160.	138.	118.	57.	29.	19.	16.
8.00	815.	422.	298.	255.	223.	70.	32.	21.	17.
9.00	873.	616.	433.	373.	328.	94.	45.	31.	26.
10.00	897.	760.	531.	458.	406.	101.	52.	33.	26.
11.00	907.	858.	600.	518.	459.	114.	65.	38.	29.
12.00	922.	900.	629.	543.	481.	107.	71.	37.	28.
13.00	907.	867.	607.	524.	465.	120.	97.	40.	30.
14.00	884.	773.	542.	467.	413.	140.	142.	41.	30.
15.00	857.	633.	445.	384.	340.	178.	204.	41.	31.
16.00	812.	449.	317.	274.	242.	208.	221.	35.	27.
17.00	697.	246.	174.	151.	133.	170.	152.	29.	20.
18.00	459.	70.	49.	45.	39.	58.	49.	18.	12.
19.00	25.	2.	1.	2.	1.	1.	2.	2.	1.
TOTAL	9915.	6850.	4806.	4152.	3663.	1429.	1167.	390.	295.

LOCATION: 85710A
DATE: 13 AUG 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.00	171.	31.	22.	20.	17.	16.	8.	6.	5.
7.00	666.	218.	153.	132.	115.	84.	33.	22.	17.
8.00	456.	315.	218.	185.	165.	156.	83.	62.	50.
9.00	594.	578.	417.	359.	338.	230.	141.	97.	79.
10.00	877.	756.	528.	454.	405.	236.	100.	42.	32.
11.00	900.	849.	593.	510.	455.	252.	126.	43.	33.
12.00	913.	885.	618.	531.	473.	241.	153.	42.	32.
13.00	908.	859.	601.	516.	460.	263.	210.	44.	34.
14.00	895.	769.	539.	463.	411.	309.	283.	44.	33.
15.00	855.	624.	439.	378.	336.	354.	318.	47.	36.
16.00	794.	442.	311.	267.	238.	332.	272.	45.	31.
17.00	529.	236.	166.	144.	128.	205.	159.	48.	29.
18.00	248.	53.	41.	36.	34.	52.	42.	25.	16.
19.00	12.	2.	1.	2.	2.	0.	2.	2.	1.
TOTAL	8917.	6623.	4647.	4007.	3576.	2731.	1929.	568.	428.

ORIGINAL PAGE IS
OF POOR QUALITY

LOCATION: 85710A
DATE: 15 AUG 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	1.	0.	1.	1.	1.	1.	0.	1.	0.
6.00	317.	47.	36.	32.	28.	21.	13.	11.	7.
7.00	633.	214.	153.	131.	116.	42.	26.	21.	13.
8.00	764.	417.	293.	246.	221.	52.	30.	24.	17.
9.00	823.	601.	423.	359.	320.	63.	38.	29.	20.
10.00	842.	784.	549.	464.	410.	118.	77.	63.	47.
11.00	890.	843.	592.	504.	452.	66.	40.	30.	21.
12.00	888.	879.	617.	526.	392.	61.	37.	28.	19.
13.00	579.	610.	410.	330.	289.	118.	77.	63.	48.
14.00	597.	631.	442.	376.	336.	151.	102.	79.	62.
15.00	562.	537.	379.	324.	291.	157.	108.	83.	64.
16.00	645.	477.	337.	288.	256.	152.	113.	80.	63.
17.00	116.	134.	95.	81.	72.	92.	58.	52.	42.
18.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
19.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL	7654.	6176.	4327.	3666.	3184.	1093.	730.	564.	423.

LOCATION: 85710A
DATE: 20 AUG 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.00	299.	37.	26.	24.	22.	17.	12.	7.	4.
7.00	698.	205.	144.	123.	108.	32.	20.	14.	6.
8.00	823.	411.	289.	246.	217.	41.	25.	17.	11.
9.00	895.	603.	424.	362.	320.	44.	25.	18.	13.
10.00	935.	760.	534.	456.	404.	49.	29.	19.	14.
11.00	960.	864.	607.	522.	460.	45.	27.	19.	12.
12.00	962.	900.	634.	544.	481.	46.	28.	18.	12.
13.00	943.	886.	623.	535.	473.	65.	48.	30.	21.
14.00	612.	686.	483.	415.	367.	82.	54.	40.	29.
15.00	881.	625.	441.	379.	334.	53.	34.	23.	16.
16.00	820.	434.	306.	263.	233.	49.	32.	21.	14.
17.00	348.	113.	76.	67.	60.	43.	30.	20.	13.
18.00	384.	57.	40.	37.	32.	30.	23.	15.	10.
19.00	0.	1.	1.	1.	1.	2.	1.	1.	0.
TOTAL	9553.	6583.	4630.	3977.	3518.	597.	385.	262.	179.

LOCATION: 85710A
DATE: 21 AUG 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	1.	0.	1.	1.	1.	1.	0.	0.
6.00	278.	46.	32.	30.	27.	24.	17.	11.	7.
7.00	635.	211.	147.	127.	112.	46.	29.	20.	15.
8.00	773.	412.	291.	246.	218.	51.	34.	25.	17.
9.00	846.	601.	423.	358.	319.	54.	36.	28.	19.
10.00	884.	747.	526.	447.	399.	57.	39.	30.	20.
11.00	901.	848.	596.	508.	452.	63.	42.	32.	22.
12.00	901.	889.	625.	534.	475.	76.	52.	41.	29.
13.00	883.	891.	628.	536.	475.	113.	79.	63.	47.
14.00	817.	754.	535.	456.	410.	92.	62.	49.	36.
15.00	825.	658.	466.	397.	352.	113.	77.	63.	48.
16.00	759.	443.	315.	269.	238.	77.	54.	42.	32.
17.00	[illegible]	224.	160.	137.	121.	74.	53.	44.	35.
18.00	347.	58.	41.	38.	33.	25.	20.	17.	11.
19.00	0.	1.	1.	1.	1.	1.	1.	1.	0.
TOTAL	9370.	6784.	4785.	4083.	3632.	868.	596.	464.	340.

LOCATION: 85710A
DATE: 22 AUG 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	1.	0.	1.	0.	0.	0.	1.	0.
6.00	232.	40.	29.	26.	23.	18.	14.	11.	7.
7.00	596.	199.	141.	119.	105.	40.	27.	21.	13.
8.00	751.	409.	289.	244.	215.	61.	36.	28.	21.
9.00	826.	598.	422.	359.	316.	73.	41.	31.	25.
10.00	855.	754.	532.	454.	402.	94.	54.	42.	34.
11.00	804.	855.	603.	515.	457.	155.	96.	78.	64.
12.00	826.	1002.	709.	606.	534.	247.	165.	136.	110.
13.00	647.	806.	567.	484.	426.	242.	160.	130.	106.
14.00	548.	705.	500.	428.	376.	264.	179.	148.	122.
15.00	462.	576.	412.	354.	307.	258.	174.	145.	122.
16.00	676.	518.	366.	315.	273.	185.	126.	104.	87.
17.00	436.	225.	161.	139.	120.	118.	74.	59.	50.
18.00	70.	39.	28.	25.	22.	33.	21.	17.	17.
19.00	0.	0.	0.	0.	0.	1.	0.	0.	1.
TOTAL	7728.	6721.	4760.	4068.	3575.	1777.	1168.	950.	779.

LOCATION: 85710A
DATE: 23 AUG 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	0.	0.	1.	1.	1.	1.	0.	1.
6.00	296.	41.	30.	27.	24.	23.	13.	10.	10.
7.00	645.	204.	145.	122.	108.	41.	23.	17.	15.
8.00	793.	410.	290.	245.	216.	49.	28.	21.	15.
9.00	860.	599.	424.	358.	317.	56.	27.	24.	13.
10.00	901.	748.	529.	448.	398.	56.	33.	23.	15.
11.00	918.	847.	597.	509.	451.	62.	36.	27.	17.
12.00	917.	884.	624.	532.	470.	70.	41.	31.	20.
13.00	911.	861.	609.	520.	460.	77.	47.	37.	24.
14.00	892.	766.	543.	462.	405.	71.	44.	33.	22.
15.00	437.	425.	304.	261.	234.	129.	86.	70.	53.
16.00	256.	268.	192.	164.	145.	129.	90.	74.	58.
17.00	87.	88.	62.	54.	48.	58.	40.	32.	24.
18.00	24.	22.	17.	17.	13.	20.	14.	12.	8.
19.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL	7939.	6162.	4366.	3719.	3292.	842.	521.	412.	296.

LOCATION: 85710A
DATE: 24 AUG 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	1.	1.	1.	0.	1.	1.	0.	0.
6.00	294.	41.	29.	27.	23.	20.	12.	10.	5.
7.00	649.	204.	145.	123.	108.	39.	23.	17.	10.
8.00	619.	342.	241.	201.	179.	66.	40.	32.	22.
9.00	855.	604.	427.	361.	319.	61.	35.	27.	18.
10.00	897.	749.	528.	449.	398.	57.	33.	24.	15.
11.00	910.	842.	596.	507.	449.	62.	36.	27.	17.
12.00	902.	876.	619.	528.	468.	76.	44.	33.	23.
13.00	862.	861.	611.	520.	460.	110.	69.	54.	38.
14.00	864.	742.	526.	448.	396.	66.	38.	28.	17.
15.00	840.	600.	426.	363.	320.	60.	34.	25.	16.
16.00	760.	431.	308.	263.	231.	77.	48.	37.	26.
17.00	624.	225.	161.	139.	121.	64.	40.	31.	22.
18.00	312.	56.	40.	37.	31.	33.	23.	18.	12.
19.00	0.	0.	0.	1.	1.	0.	0.	0.	0.
TOTAL	9389.	6575.	4659.	3968.	3505.	793.	478.	362.	241.

LOCATION: 85710A
DATE: 25 AUG 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	0.	0.	0.	1.	0.	0.	0.	0.
6.00	269.	40.	29.	26.	23.	23.	13.	11.	6.
7.00	615.	196.	139.	117.	104.	41.	25.	19.	11.
8.00	756.	399.	284.	238.	210.	54.	33.	24.	16.
9.00	828.	587.	415.	350.	310.	61.	37.	27.	18.
10.00	867.	736.	520.	442.	390.	68.	40.	31.	21.
11.00	879.	829.	586.	498.	441.	75.	45.	35.	24.
12.00	878.	862.	609.	519.	459.	81.	50.	39.	27.
13.00	875.	835.	589.	503.	445.	80.	50.	39.	27.
14.00	857.	739.	524.	446.	395.	74.	47.	35.	25.
15.00	814.	592.	420.	357.	315.	71.	46.	34.	23.
16.00	739.	403.	288.	244.	215.	64.	45.	30.	21.
17.00	593.	199.	148.	123.	108.	55.	41.	25.	17.
18.00	249.	44.	32.	29.	25.	26.	19.	13.	8.
19.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL	9218.	6461.	4579.	3894.	3441.	772.	493.	360.	242.

LOCATION: 85710A
DATE: 26 AUG 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	0.	0.	1.	1.	1.	0.	0.	0.
6.00	235.	37.	28.	25.	22.	21.	14.	10.	5.
7.00	602.	197.	139.	117.	930.	43.	27.	21.	12.
8.00	760.	402.	284.	241.	212.	54.	34.	26.	16.
9.00	840.	593.	420.	357.	314.	65.	39.	25.	19.
10.00	871.	737.	521.	444.	392.	71.	41.	32.	21.
11.00	888.	830.	588.	502.	443.	74.	45.	34.	22.
12.00	890.	863.	611.	522.	460.	77.	47.	36.	24.
13.00	890.	835.	592.	506.	446.	74.	44.	34.	22.
14.00	869.	741.	527.	451.	397.	73.	43.	33.	22.
15.00	833.	593.	422.	361.	317.	65.	39.	29.	19.
16.00	762.	410.	292.	251.	220.	56.	33.	25.	15.
17.00	614.	198.	142.	124.	108.	46.	28.	21.	14.
18.00	258.	40.	29.	26.	24.	21.	14.	11.	7.
19.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL	9311.	6476.	4594.	3928.	4286.	742.	448.	337.	218.

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LOCATION: 85710A
DATE: 30 AUG 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	0.	0.	1.	0.	1.	0.	0.	0.
6.00	199.	46.	33.	31.	22.	34.	22.	16.	15.
7.00	557.	188.	135.	116.	97.	58.	35.	28.	20.
8.00	717.	391.	279.	238.	204.	74.	46.	35.	25.
9.00	811.	586.	418.	359.	308.	81.	49.	37.	26.
10.00	873.	746.	530.	456.	394.	84.	50.	39.	28.
11.00	890.	838.	597.	514.	446.	83.	51.	39.	26.
12.00	890.	868.	619.	532.	461.	82.	51.	38.	27.
13.00	879.	835.	596.	512.	443.	88.	53.	41.	28.
14.00	823.	733.	524.	451.	389.	100.	62.	48.	33.
15.00	775.	582.	417.	358.	308.	92.	58.	44.	30.
16.00	696.	390.	281.	242.	206.	76.	49.	38.	25.
17.00	538.	181.	131.	114.	96.	53.	35.	26.	17.
18.00	166.	30.	22.	20.	15.	20.	14.	12.	8.
19.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL	8815.	6414.	4583.	3942.	3390.	928.	575.	440.	308.

LOCATION: 85710A
DATE: 31 AUG 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.00	140.	35.	25.	24.	18.	29.	19.	15.	11.
7.00	505.	196.	140.	120.	101.	76.	50.	41.	29.
8.00	662.	384.	273.	232.	199.	81.	50.	38.	26.
9.00	775.	575.	410.	351.	302.	95.	56.	43.	31.
10.00	[illegible]	722.	514.	440.	381.	109.	54.	50.	35.
11.00	824.	817.	580.	498.	433.	119.	72.	55.	38.
12.00	811.	843.	599.	512.	446.	129.	79.	60.	42.
13.00	806.	812.	579.	495.	431.	125.	75.	58.	40.
14.00	772.	710.	507.	434.	377.	118.	71.	55.	39.
15.00	740.	564.	402.	346.	298.	99.	61.	46.	31.
16.00	668.	374.	269.	230.	198.	78.	48.	37.	23.
17.00	518.	176.	126.	110.	92.	56.	37.	27.	18.
18.00	164.	41.	31.	28.	22.	33.	24.	19.	14.
19.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL	8215.	6247.	4454.	3820.	3298.	1147.	696.	545.	376.

LOCATION: 85710A
DATE: 01 SEP 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.00	3.	23.	16.	15.	11.	24.	18.	15.	11.
7.00	179.	175.	125.	107.	91.	129.	88.	75.	60.
8.00	162.	251.	178.	150.	132.	174.	118.	99.	78.
9.00	512.	484.	342.	287.	255.	161.	103.	80.	59.
10.00	714.	689.	488.	411.	363.	151.	94.	72.	50.
11.00	768.	783.	554.	467.	415.	141.	85.	65.	44.
12.00	792.	821.	581.	490.	436.	134.	81.	61.	42.
13.00	795.	797.	564.	477.	424.	131.	80.	61.	42.
14.00	779.	693.	491.	414.	368.	109.	66.	49.	33.
15.00	724.	541.	385.	325.	288.	101.	63.	46.	31.
16.00	605.	356.	253.	215.	189.	99.	66.	46.	32.
17.00	414.	155.	110.	95.	83.	64.	47.	30.	21.
18.00	65.	19.	14.	14.	11.	17.	11.	9.	6.
19.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL	6512.	5787.	4100.	3466.	3065.	1434.	921.	709.	510.

LOCATION: 85710A
DATE: 02 SEP 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.00	3.	22.	16.	13.	12.	24.	17.	15.	11.
7.00	10.	107.	76.	65.	57.	106.	74.	63.	51.
8.00	273.	295.	209.	174.	154.	170.	114.	92.	72.
9.00	548.	551.	392.	331.	294.	174.	141.	114.	70.
10.00	334.	530.	373.	313.	283.	288.	195.	158.	124.
11.00	402.	613.	432.	361.	326.	278.	185.	149.	115.
12.00	733.	903.	641.	541.	480.	265.	175.	138.	105.
13.00	458.	664.	466.	390.	349.	283.	190.	151.	116.
14.00	550.	631.	449.	380.	341.	226.	156.	115.	88.
15.00	695.	538.	382.	321.	286.	136.	98.	57.	39.
16.00	599.	354.	252.	213.	187.	128.	101.	51.	35.
17.00	417.	152.	108.	93.	81.	85.	68.	32.	22.
18.00	93.	22.	16.	14.	12.	21.	15.	10.	7.
19.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL	5113.	5384.	3813.	3210.	2861.	2185.	1528.	1144.	853.

LOCATION: 85710A
DATE: 03 SEP 1974

TIME	DN	TH	TH1	TH2	TH3	SH	SH1	SH2	SH3
5.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
6.00	45.	21.	16.	15.	12.	22.	14.	12.	9.
7.00	168.	116.	82.	69.	63.	88.	58.	46.	34.
8.00	115.	221.	154.	126.	115.	173.	116.	94.	73.
9.00	650.	540.	383.	320.	282.	177.	99.	67.	46.
10.00	727.	691.	488.	410.	363.	207.	115.	69.	47.
11.00	754.	786.	555.	468.	416.	226.	133.	76.	52.
12.00	727.	821.	562.	491.	434.	262.	166.	98.	69.
13.00	758.	782.	555.	467.	414.	228.	157.	76.	52.
14.00	746.	688.	488.	411.	364.	223.	169.	66.	47.
15.00	701.	541.	386.	325.	287.	225.	184.	59.	41.
16.00	534.	350.	250.	210.	185.	214.	172.	64.	46.
17.00	92.	101.	71.	59.	52.	87.	63.	43.	33.
18.00	0.	6.	4.	3.	3.	5.	4.	3.	2.
19.00	0.	0.	0.	0.	0.	0.	0.	0.	0.
TOTAL	6016.	5665.	4016.	3377.	2989.	2139.	1450.	773.	552.

LOCATION: 85710A
DATE:

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Ratios expressed as percentages

S/T: Scattered/Total

Spectral ratios for (T-H) total horizontal and (D-H) direct horizontal flux

1/T Flux with OG-1 filter/flux without filter

2/T Flux with RG-1 filter/flux without filter

3/T Flux with RG-8 filter/flux without filter

LOCATION: 85710A
DATE: 10 AUG 1974

TIME	S/T	1/T	T-H 2/T	3/T	1/T	D-H 2/T	3/T
5.00	0.	0.	0.	0.	0.	0.	0.
6.00	41.	72.	63.	54.	84.	80.	64.
7.00	22.	72.	62.	53.	75.	67.	58.
8.00	14.	71.	60.	53.	73.	63.	56.
9.00	11.	70.	60.	53.	72.	62.	55.
10.00	9.	70.	60.	53.	71.	62.	55.
11.00	7.	70.	60.	53.	71.	62.	55.
12.00	7.	70.	60.	53.	71.	52.	55.
13.00	5.	70.	61.	53.	69.	61.	54.
14.00	9.	70.	60.	53.	71.	62.	55.
15.00	17.	69.	57.	49.	66.	57.	51.
16.00	38.	71.	61.	54.	69.	67.	62.
17.00	37.	72.	62.	54.	55.	74.	66.
18.00	69.	75.	65.	56.	47.	115.	101.
19.00	271.	128.	137.	84.	0.	0.	0.
TOTAL	13.	70.	60.	53.	70.	63.	56.

LOCATION: 85710A
DATE: 11 AUG 1974

TIME	S/T	1/T	T-H 2/T	3/T	1/T	D-H 2/T	3/T
5.00	0.	0.	0.	0.	0.	0.	0.
6.00	39.	72.	64.	53.	82.	79.	65.
7.00	22.	71.	61.	52.	75.	67.	58.
8.00	13.	71.	60.	53.	73.	63.	56.
9.00	10.	70.	60.	53.	72.	63.	55.
10.00	9.	70.	60.	53.	72.	62.	55.
11.00	8.	70.	60.	53.	72.	62.	55.
12.00	9.	70.	60.	53.	71.	62.	55.
13.00	10.	70.	60.	53.	71.	63.	56.
14.00	15.	71.	61.	53.	70.	64.	57.
15.00	17.	71.	61.	53.	65.	66.	58.
16.00	29.	71.	61.	54.	54.	73.	65.
17.00	50.	71.	62.	53.	40.	96.	85.
18.00	102.	76.	66.	59.	0.	0.	0.
19.00	384.	135.	170.	108.	0.	0.	0.
TOTAL	15.	71	61.	53.	69.	65.	57.

LOCATION: 85710A
DATE: 12 AUG 1974

TIME	S/T	1/T	T-H 2/T	3/T	1/T	D-H 2/T	3/T
5.00	0.	0.	0.	0.	0.	0.	0.
6.00	43.	73.	63.	52.	93.	86.	74.
7.00	25.	71.	62.	53.	79.	71.	61.
8.00	17.	71.	60.	53.	76.	67.	59.
9.00	15.	70.	61.	53.	74.	66.	58.
10.00	13.	70.	60.	53.	73.	64.	58.
11.00	13.	70.	60.	54.	72.	65.	58.
12.00	12.	70.	60.	53.	70.	64.	57.
13.00	14.	70.	60.	54.	68.	65.	58.
14.00	18.	70.	60.	53.	63.	67.	61.
15.00	28.	70.	61.	54.	53.	75.	68.
16.00	46.	70.	61.	54.	39.	99.	89.
17.00	69.	71.	61.	54.	29.	159.	147.
18.00	83.	71.	64.	56.	1.	234.	232.
19.00	29.	57.	81.	57.	-32.	11.	26.
TOTAL	21.	70.	61.	53.	67.	69.	62.

LOCATION: 85710A
DATE: 13 AUG 1974

TIME	S/T	1/T	T-H 2/T	3/T	1/T	D-H 2/T	3/T
5.00	0.	0.	0.	0.	0.	0.	0.
6.00	52.	70.	63.	55.	91.	92.	82.
7.00	39.	70.	61.	53.	90.	82.	74.
8.00	50.	69.	59.	52.	85.	78.	72.
9.00	40.	72.	64.	59.	79.	78.	75.
10.00	31.	70.	60.	54.	62.	79.	72.
11.00	30.	70.	60.	54.	78.	78.	71.
12.00	27.	70.	60.	53.	72.	76.	69.
13.00	31.	70.	60.	54.	65.	79.	72.
14.00	40.	70.	60.	53.	56.	91.	82.
15.00	57.	70.	61.	54.	45.	123.	111.
16.00	75.	70.	61.	54.	36.	203.	189.
17.00	87.	70.	61.	54.	94.	308.	318.
18.00	87.	69.	61.	57.	-10.	150.	232.
19.00	18.	[illegible]	77.	58.	-27.	13.	23.
TOTAL	41.	70.	60.	54.	70.	88.	81.

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OF POOR QUALITY

LOCATION: 85710A
DATE: 15 AUG 1974

TIME	S/T	T-H 1/T	T-H 2/T	T-H 3/T	D-H 1/T	D-H 2/T	D-H 3/T
5.00	378.	403.	717.	798.	0.	0.	0.
6.00	44.	76.	68.	59.	86.	81.	81.
7.00	19.	71.	61.	54.	74.	64.	59.
8.00	12.	70.	59.	53.	73.	61.	56.
9.00	11.	70.	60.	53.	72.	61.	56.
10.00	15.	70.	59.	52.	71.	60.	54.
11.00	8.	70.	60.	54.	71.	61.	55.
12.00	7.	70.	60.	45.	71.	61.	46.
13.00	19.	67.	54.	47.	68.	54.	49.
14.00	24.	70.	60.	53.	71.	62.	57.
15.00	29.	71.	60.	54.	71.	64.	60.
16.00	32.	71.	60.	54.	69.	64.	60.
17.00	69.	71.	61.	54.	66.	71.	72.
18.00	0.	0.	0.	0.	0.	0.	0.
19.00	0.	0.	0.	0.	0.	0.	0.
TOTAL	18.	70.	59.	52.	71.	61.	54.

LOCATION: 85710A
DATE: 20 AUG 1974

TIME	S/	T-H 1/T	T-H 2/T	T-H 3/T	D-H 1/T	D-H 2/T	D-H 3/T
5.00	0.	0.	0.	0.	0.	0.	0.
6.00	45.	70.	65.	58.	70.	83.	87.
7.00	16.	70.	60.	53.	72.	63.	58.
8.00	10.	70.	60.	53.	71.	62.	56.
9.00	7.	70.	60.	53.	71.	62.	55.
10.00	6.	70.	60.	53.	71.	62.	55.
11.00	5.	70.	60.	53.	71.	61.	55.
12.00	5.	70.	60.	53.	71.	62.	55.
13.00	7.	70.	60.	53.	71.	62.	55.
14.00	18.	70.	61.	53.	71.	62.	56.
15.00	9.	71.	61.	54.	71.	62.	56.
16.00	11.	71.	61.	54.	71.	63.	57.
17.00	38.	68.	59.	53.	66.	67.	67.
18.00	52.	70.	65.	56.	64.	82.	80.
19.00	147.	43.	111.	49.	0.	0.	0.
TOTAL	9.	70.	60.	53.	71.	62.	56.

LOCATION: 85710A
DATE: 21 AUG 1974

TIME	S/T	T-H 1/T	T-H 2/T	T-H 3/T	D-H 1/T	D-H 2/T	D-H 3/T
5.00	91.	22.	64.	86.	-572.	271.	513.
6.00	53.	69.	64.	58.	68.	83.	88.
7.00	22.	70.	60.	53.	72.	65.	59.
8.00	12.	71.	60.	53.	71.	61.	56.
9.00	9.	70.	60.	53.	71.	61.	55.
10.00	8.	70.	60.	53.	71.	61.	55.
11.00	7.	70.	60.	53.	71.	61.	55.
12.00	8.	70.	60.	53.	70.	60.	55.
13.00	13.	70.	60.	53.	71.	61.	55.
14.00	12.	71.	60.	54.	71.	62.	56.
15.00	17.	71.	60.	53.	71.	61.	56.
16.00	17.	71.	61.	54.	71.	62.	56.
17.00	33.	72.	61.	54.	71.	63.	58.
18.00	44.	71.	65.	57.	64.	64.	67.
19.00	69.	90.	101.	132.	22.	138.	327.
TOTAL	13.	71.	60.	54.	71.	61.	56.

LOCATION: 85710A
DATE: 22 AUG 1974

TIME	S/T	T-H 1/T	T-H 2/T	T-H 3/T	D-H 1/T	D-H 2/T	D-H 3/T
5.00	0.	55.	150.	59.	-2.	72.	36.
6.00	45.	73.	65.	57.	68.	67.	72.
7.00	20.	71.	60.	53.	72.	63.	58.
8.00	15.	71.	60.	53.	73.	62.	56.
9.00	12.	71.	60.	53.	73.	62.	55.
10.00	12.	71.	60.	53.	72.	62.	56.
11.00	18.	71.	60.	53.	72.	62.	56.
12.00	25.	71.	61.	53.	72.	62.	56.
13.00	30.	70.	60.	53.	72.	63.	57.
14.00	37.	71.	61.	53.	73.	63.	58.
15.00	44.	71.	61.	53.	73.	65.	57.
16.00	36.	71.	62.	53.	74.	65.	57.
17.00	50.	71.	62.	53.	77.	71.	62.
18.00	85.	72.	66.	57.	107.	135.	82.
19.00	382.	66.	58.	51.	0.	0.	0.
TOTAL	26.	71.	61.	53.	73.	63.	57.

LOCATION: 85710A
DATE: 23 AUG 1974

		T-H			D-H		
TIME	S/T	1/T	2/T	3/T	1/T	2/T	3/T
5.00	150.	38.	103.	136.	0.	0.	0.
6.00	57.	74.	67.	59.	100.	101.	78.
7.00	20.	71.	60.	53.	75.	65.	57.
8.00	12.	71.	60.	53.	73.	62.	56.
9.00	9.	71.	60.	53.	73.	61.	56.
10.00	7.	71.	60.	53.	78.	61.	55.
11.00	7.	71.	60.	53.	72.	61.	55.
12.00	8.	71.	60.	53.	78.	61.	55.
13.00	9.	71.	60.	53.	78.	68.	56.
14.00	9.	71.	60.	53.	72.	68.	56.
15.00	30.	72.	61.	55.	74.	64.	61.
16.00	48.	71.	61.	54.	73.	65.	62.
17.00	66.	70.	62.	55.	75.	73.	81.
18.00	90.	77.	76.	60.	120.	208.	212.
19.00	0.	0.	0.	0.	0.	0.	0.
TOTAL	14.	71.	60.	53.	72.	62.	56.

LOCATION: 85710A
DATE: 24 AUG 1974

		T-H			D-H		
TIME	S/T	1/T	2/T	3/T	1/T	2/T	3/T
5.00	163.	121.	134.	71.	0.	0.	0.
6.00	49.	71.	66.	56.	80.	83.	87.
7.00	19.	71.	60.	53.	74.	64.	60.
8.00	19.	70.	59.	52.	73.	61.	57.
9.00	10.	71.	60.	53.	72.	62.	55.
10.00	8.	70.	60.	53.	72.	61.	55.
11.00	7.	71.	60.	53.	72.	61.	55.
12.00	9.	71.	60.	53.	72.	62.	56.
13.00	13.	71.	60.	53.	72.	62.	56.
14.00	9.	71.	60.	53.	72.	62.	56.
15.00	10.	71.	61.	53.	73.	63.	56.
16.00	18.	71.	61.	54.	73.	64.	58.
17.00	29.	72.	62.	54.	75.	68.	62.
18.00	60.	73.	66.	56.	77.	84.	86.
19.00	105.	110.	267.	214.	0.	0.	0.
TOTAL	12.	71.	60.	53.	72.	62.	56.

LOCATION: 65710A
DATE: 25 AUG 1974

		T-H			D-H		
TIME	S/T	1/T	2/T	3/T	1/T	2/T	3/T
5.00	97.	51.	92.	69.	460.	2446.	1988.
6.00	56.	72.	65.	57.	89.	89.	95.
7.00	21.	71.	60.	53.	74.	64.	60.
8.00	13.	71.	60.	53.	73.	62.	56.
9.00	10.	71.	60.	53.	72.	61.	56.
10.00	9.	71.	60.	53.	72.	61.	55.
11.00	9.	71.	60.	53.	72.	61.	55.
12.00	9.	71.	60.	53.	72.	62.	55.
13.00	10.	71.	60.	53.	72.	62.	55.
14.00	10.	71.	60.	53.	72.	62.	56.
15.00	12.	71.	60.	53.	72.	62.	56.
16.00	16.	71.	61.	53.	71.	63.	57.
17.00	28.	72.	62.	54.	70.	68.	63.
18.00	59.	72.	66.	58.	69.	90.	97.
19.00	0.	0.	0.	0.	0.	0.	0.
TOTAL	12.	71.	60.	53.	72.	62.	56.

LOCATION: 65710A
DATE: 26 AUG 1974

		T-H			D-H		
TIME	S/T	1/T	2/T	3/T	1/T	2/T	3/T
5.00	2907.	681.	2359.	1938.	0.	0.	0.
6.00	57.	75.	69.	59.	90.	95.	104.
7.00	22.	71.	60.	473.	73.	63.	599.
8.00	14.	71.	60.	53.	72.	62.	56.
9.00	11.	71.	60.	53.	72.	63.	56.
10.00	10.	71.	60.	53.	72.	62.	56.
11.00	9.	71.	60.	53.	72.	62.	56.
12.00	9.	71.	60.	53.	72.	62.	56.
13.00	9.	71.	61.	53.	72.	62.	56.
14.00	10.	71.	61.	54.	72.	63.	56.
15.00	11.	71.	61.	53.	73.	63.	56.
16.00	14.	71.	61.	54.	73.	64.	58.
17.00	23.	72.	63.	55.	75.	68.	62.
18.00	53.	72.	65.	60.	78.	79.	92.
19.00	0.	0.	0.	0.	0.	0.	0.
TOTAL	11.	71.	61.	66.	72.	63.	71.

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LOCATION: 85710A
DATE: 30 AUG 1974

			T-H			D-H	
TIME	S/T	1/T	2/T	3/T	1/T	2/T	3/T
5.00	0.	0.	0.	0.	0.	0.	0.
6.00	74.	73.	67.	49.	96.	128.	68.
7.00	31.	72.	62.	52.	77.	68.	60.
8.00	19.	71.	61.	52.	74.	64.	57.
9.00	14.	71.	61.	53.	73.	64.	56.
10.00	11.	71.	61.	53.	72.	63.	55.
11.00	10.	71.	61.	53.	72.	63.	56.
12.00	9.	71.	61.	53.	72.	63.	55.
13.00	11.	71.	61.	53.	73.	63.	56.
14.00	14.	72.	61.	53.	73.	64.	56.
15.00	16.	72.	62.	53.	73.	64.	57.
16.00	19.	72.	62.	53.	74.	65.	58.
17.00	29.	72.	63.	53.	75.	68.	61.
18.00	69.	73.	68.	52.	85.	91.	78.
19.00	0.	0.	0.	0.	0.	0.	0.
TOTAL	14.	71.	61.	53.	73.	64.	56.

LOCATION: 85710A
DATE: 31 AUG 1974

			T-H			D-H	
TIME	S/T	1/T	2/T	3/T	1/T	2/T	3/T
5.00	0.	0.	0.	0.	0.	0.	0.
6.00	84.	72.	68.	52.	116.	147.	121.
7.00	39.	71.	61.	51.	75.	67.	60.
8.00	21.	71.	61.	52.	74.	64.	57.
9.00	16.	71.	61.	53.	74.	64.	57.
10.00	15.	71.	61.	53.	75.	64.	57.
11.00	15.	71.	61.	53.	73.	63.	57.
12.00	15.	71.	61.	53.	73.	63.	57.
13.00	15.	71.	61.	53.	73.	64.	57.
14.00	17.	71.	61.	53.	74.	64.	57.
15.00	18.	71.	61.	53.	73.	65.	57.
16.00	21.	72.	62.	53.	74.	66.	59.
17.00	32.	72.	62.	52.	74.	69.	62.
18.00	81.	75.	67.	53.	94.	111.	96.
19.00	0.	0.	0.	0.	0.	0.	0.
TOTAL	18.	71.	61.	53.	74.	64.	57.

LOCATION: 85710A
DATE: 01 SEP 1974

		T-H			D-H		
TIME	S/T	1/T	2/T	3/T	1/T	2/T	3/T
5.00	0.	0.	0.	0.	0.	0.	0.
6.00	106.	72.	66.	49.	0.	0.	0.
7.00	74.	72.	62.	52.	31.	70.	68.
8.00	69.	71.	60.	53.	77.	66.	70.
9.00	33.	71.	59.	55.	74.	64.	61.
10.00	22.	71.	60.	53.	73.	63.	58.
11.00	18.	71.	60.	53.	73.	63.	58.
12.00	16.	71.	60.	53.	73.	62.	57.
13.00	16.	71.	60.	53.	73.	62.	57.
14.00	16.	71.	60.	53.	73.	62.	57.
15.00	19.	71.	60.	53.	73.	63.	58.
16.00	28.	71.	60.	53.	73.	66.	61.
17.00	41.	71.	61.	54.	70.	71.	69.
18.00	90.	74.	73.	57.	126.	264.	234.
19.00	0.	0.	0.	0.	0.	0.	0.
TOTAL	25.	71.	60.	53.	73.	63.	59.

LOCATION: 85710A
DATE: 02 SEP 1974

		T-H			D-H		
TIME	S/T	1/T	2/T	3/T	1/T	2/T	3/T
5.00	0.	0.	0.	0.	0.	0.	0.
6.00	108.	72.	71.	53.	0.	0.	0.
7.00	99.	71.	60.	53.	287.	246.	827.
8.00	58.	71.	59.	52.	77.	65.	65.
9.00	31.	71.	60.	53.	67.	57.	59.
10.00	54.	70.	59.	53.	74.	64.	65.
11.00	45.	70.	59.	53.	74.	63.	63.
12.00	29.	71.	60.	53.	73.	63.	59.
13.00	43.	70.	59.	52.	72.	63.	61.
14.00	36.	71.	60.	54.	73.	66.	63.
15.00	25.	71.	60.	53.	71.	66.	61.
16.00	36.	71.	60.	53.	66.	71.	67.
17.00	56.	71.	61.	53.	60.	90.	87.
18.00	95.	73.	66.	56.	133.	392.	552.
19.00	0.	0.	0.	0.	0.	0.	0.
TOTAL	41.	71.	60.	53.	71.	65.	63.

LOCATION: 85710A
DATE: 03 SEP 1974

		T-H			D-H		
TIME	S/T	1/T	2/T	3/T	1/T	2/T	3/T
5.00	0.	0.	0.	0.	0.	0.	0.
6.00	104.	76.	71.	54.	0.	0.	0.
7.00	76.	71.	60.	54.	87.	87.	105.
8.00	78.	70.	57.	52.	80.	67.	89.
9.00	33.	71.	59.	52.	78.	70.	65.
10.00	30.	71.	59.	53.	77.	70.	65.
11.00	29.	71.	60.	53.	76.	70.	65.
12.00	32.	71.	60.	53.	74.	70.	65.
13.00	29.	71.	60.	53.	72.	71.	65.
14.00	32.	71.	60.	53.	69.	74.	68.
15.00	42.	71.	60.	53.	64.	84.	78.
16.00	61.	71.	60.	53.	57.	107.	102.
17.00	86.	70.	59.	51.	56.	114.	133.
18.00	87.	71.	56.	46.	49.	3.	62.
19.00	0.	0.	0.	0.	0.	0.	0.
TOTAL	38.	71.	60.	53.	73.	74.	69.

ENERGY VS FLUX

FHI FLO = High and low flux limits in units of watts/m^2

EDN = Direct normal energy in units of watt-hrs/m^2

ETH = Total horizontal energy in units of watt-hrs/m^2

LOCATION: 85710A

DATE: 10 AUG 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	473.	0.
940	920	3106.	0.
920	900	3865.	1060.
900	880	4903.	2097.
880	860	5193.	2386.
860	840	5622.	2669.
840	820	6038.	2808.
820	800	6173.	3349.
800	780	6702.	3481.
780	760	6959.	3869.
760	740	7208.	3994.
740	720	7208.	4238.
720	700	7328.	4356.
700	680	7673.	4472.
680	660	8006.	4582.
660	640	8113.	4798.
640	620	8219.	4903.
620	600	8321.	5107.
600	580	8520.	5107.
580	560	8520.	5298.
560	540	8704.	5480.
540	520	8704.	5480.
520	500	8790.	5650.
500	480	8871.	5730.
480	460	8949.	5730.
460	440	8949.	5805.
440	420	9019.	5805.
420	400	9019.	5874.
400	380	9019.	5874.
380	360	9080.	5937.
360	340	9080.	5995.
340	320	9080.	6051.
320	300	9080.	6103.
300	280	9080.	6151.
280	260	9124.	6196.
260	240	9124.	[illegible]
240	220	9124.	6321.
220	200	9124.	6391.
200	180	9124.	6391.
180	160	9124.	6449.
160	140	9150.	6496.
140	120	9150.	6496.
120	100	9150.	6550.
100	80	9150.	6607.
80	60	9150.	6631.
60	40	9150.	6640.
40	20	9150.	664[illegible]
20	0	9159.	665[illegible]

DATE: 11 AUG 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	0.	0.
940	920	1697.	307.
920	900	3213.	912.
900	880	4546.	1507.
880	860	5125.	2232.
860	840	6260.	2514.
840	820	6674.	2931.
820	800	7079.	3200.
800	780	7343.	3729.
780	760	7473.	3857.
760	740	7722.	3981.
740	720	7964.	4104.
720	700	8200.	4342.
700	680	8316.	4571.
680	660	8428.	4682.
660	640	8535.	4791.
640	620	8535.	5002.
620	600	8839.	5204.
600	580	8938.	5204.
580	560	8938.	5395.
560	540	9123.	5576.
540	520	9123.	5576.
520	500	9206.	5748.
500	480	[illegible]	5828.
480	460	9283.	5828.
460	440	9359.	[illegible]
440	420	9359.	6048.
420	400	9359.	6116.
400	380	[illegible]	6309.
380	360	[illegible]	6309.
360	340	9359.	6425.
340	320	9359.	6425.
320	300	9410.	6529.
300	280	9410.	6529.
280	260	9410.	6575.
260	240	9410.	6575.
240	220	9448.	6615.
220	200	9448.	6649.
200	180	9448.	6714.
180	160	9448.	6801.
160	140	9448.	6849.
140	120	9448.	6849.
120	100	9468.	6868.
100	80	9481.	6868.
80	60	9481.	6880.
60	40	9481.	6880.
40	20	9481.	6900.
20	0	9484.	6904.

ORIGINAL PAGE IS
OF POOR QUALITY

LOCATION: 85710A

DATE: 12 AUG 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	0.	0.
940	920	463.	0.
920	900	2737.	452.
900	880	4668.	1342.
880	860	5395.	1925.
860	840	6528.	2209.
840	820	7081.	2625.
820	800	7350.	3030.
800	780	7615.	3292.
780	760	8001.	3548.
760	740	8127.	3798.
740	720	8250.	4040.
720	700	8607.	4393.
700	680	8723.	4393.
680	660	8946.	4505.
660	640	8946.	4723.
640	620	9158.	4828.
620	600	9359.	5031.
600	580	9359.	5130.
580	560	9452.	5317.
560	540	9543.	5317.
540	520	9543.	5496.
520	500	9630.	5663.
500	480	9712.	5663.
480	460	9712.	5819.
460	440	9787.	5893.
440	420	9787.	5965.
420	400	9787.	6100.
400	380	9787.	6100.
380	360	9787.	6222.
360	340	9846.	6222.
340	320	9846.	6334.
320	300	9846.	6385.
300	280	9846.	6434.
280	260	9890.	6523.
260	240	9890.	6523.
240	220	9890.	6601.
220	200	9890.	6635.
200	180	9890.	6668.
180	160	9890.	6723.
160	140	9915.	6749.
140	120	9915.	6771.
120	100	9915.	6807.
100	80	9915.	6807.
80	60	9915.	6830.
60	40	9915.	6839.
40	20	9915.	6844.
20	0	9915.	6850.

DATE: 13 AUG 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	0.	0.
940	920	0.	0.
920	900	2726.	0.
900	880	4059.	1032.
880	860	4782.	1613.
860	840	5349.	2180.
840	820	5625.	2457.
820	800	5761.	2864.
800	780	6687.	3258.
780	760	6687.	3642.
760	740	6936.	3767.
740	720	7180.	4130.
720	700	7416.	4247.
700	680	7531.	4475.
680	660	7754.	4586.
660	640	7754.	4803.
640	620	7964.	4803.
620	600	8067.	4905.
600	580	8264.	5002.
580	560	8264.	5002.
560	540	8445.	5186.
540	520	8445.	5186.
520	500	8531.	5359.
500	480	8611.	5441.
480	460	8611.	5441.
460	440	8688.	5517.
440	420	8688.	5589.
420	400	8688.	5658.
400	380	8688.	5854.
380	360	8688.	5914.
360	340	8688.	5974.
340	320	8688.	6029.
320	300	8688.	6080.
300	280	8735.	6127.
280	260	8735.	6171.
260	240	8777.	6213.
240	220	8777.	6291.
220	200	8845.	6361.
200	180	8845.	6425.
180	160	8873.	6483.
160	140	8873.	6507.
140	120	8873.	6551.
120	100	8873.	6568.
100	80	8873.	6584.
80	60	8897.	6597.
60	40	8913.	6607.
40	20	8916.	6621.
20	0	8917.	6623.

LOCATION: 85710A

DATE: 15 AUG 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	0.	0.
940	920	0.	0.
920	900	0.	152.
900	880	1928.	593.
880	860	2947.	1760.
860	840	3230.	2186.
840	820	3785.	2599.
820	800	4598.	2735.
800	780	5256.	3001.
780	760	5898.	3388.
760	740	6022.	3514.
740	720	6022.	3514.
720	700	6378.	3631.
700	680	6722.	3976.
680	660	6834.	4088.
660	640	6943.	4302.
640	620	6943.	4302.
620	600	7046.	4405.
600	580	7143.	4601.
580	560	7143.	4788.
560	540	7237.	4788.
540	520	7237.	4966.
520	500	7322.	5050.
500	480	7322.	5133.
480	460	7322.	5289.
460	440	7398.	5362.
440	420	7398.	5434.
420	400	7398.	5501.
400	380	7461.	5501.
380	360	7461.	5563.
360	340	7461.	5563.
340	320	7461.	5618.
320	300	7461.	5618.
300	280	7511.	5714.
280	260	7511.	5805.
260	240	7511.	5805.
240	220	7511.	5843.
220	200	7511.	5877.
200	180	7575.	5944.
180	160	7575.	6084.
160	140	7602.	6084.
140	120	7625.	6128.
120	100	7625.	6145.
100	80	7642.	6145.
80	60	7642.	6158.
60	40	7642.	6166.
40	20	7647.	6171.
20	0	7654.	6176.

DATE: 20 AUG 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	1607.	0.
960	940	3031.	0.
940	920	3956.	0.
920	900	4715.	452.
900	880	5605.	1936.
880	860	6039.	2515.
860	840	6748.	2656.
840	820	7027.	2794.
820	800	7566.	3198.
800	780	7566.	3330.
780	760	7952.	3456.
760	740	8075.	3708.
740	720	8195.	3829.
720	700	8195.	4067.
700	680	8310.	4297.
680	660	8310.	4409.
660	640	8526.	4516.
640	620	8631.	4727.
620	600	8732.	4828.
600	580	8832.	4927.
580	560	8927.	5116.
560	540	9018.	5208.
540	520	9105.	5296.
520	500	9105.	5362.
500	480	9105.	5547.
480	460	9261.	5624.
460	440	9261.	5699.
440	420	9261.	5771.
420	400	9261.	5840.
400	380	9261.	5969.
380	360	9387.	6030.
360	340	9387.	6087.
340	320	9387.	6141.
320	300	9387.	6141.
300	280	9387.	6190.
280	260	9432.	6190.
260	240	9473.	6233.
240	220	9473.	6270.
220	200	9473.	6304.
200	180	9473.	6335.
180	160	9502.	6392.
160	140	9502.	6443.
140	120	9523.	6464.
120	100	9543.	6484.
100	80	9543.	6515.
80	60	9543.	6537.
60	40	9543.	6554.
40	20	9549.	6573.
20	0	9553.	6583.

LOCATION: 85710A

DATE: 21 AUG 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	0.	0.
940	920	0.	0.
920	900	1204.	304.
900	880	2697.	1492.
880	860	4585.	1928.
860	840	5010.	2353.
840	820	5699.	2631.
820	800	6236.	2902.
800	780	6367.	3166.
780	760	6881.	3296.
760	740	7256.	3549.
740	720	7500.	3913.
720	700	7725.	4033.
700	680	7849.	4265.
680	660	7849.	4491.
660	640	8068.	4705.
640	620	8173.	4705.
620	600	8275.	5010.
600	580	8471.	5207.
580	560	8471.	5207.
560	540	8563.	5300.
540	520	8743.	5477.
520	500	8743.	5477.
500	480	8906.	5641.
480	460	8985.	5795.
460	440	8985.	5795.
440	420	9055.	5938.
420	400	9124.	5938.
400	380	9124.	6069.
380	360	9124.	6189.
360	340	9239.	6189.
340	320	9239.	6299.
320	300	9239.	6299.
300	280	9239.	6348.
280	260	9239.	6482.
260	240	9279.	6482.
240	220	9318.	6520.
220	200	9318.	6557.
200	180	9318.	6589.
180	160	9318.	6618.
160	140	9342.	6645.
140	120	9364.	6688.
120	100	9364.	6688.
100	80	9364.	6719.
80	60	9364.	6742.
60	40	9364.	6760.
40	20	9368.	6775.
20	0	9370.	6784.

DATE: 22 AUG 1974

FHI	FLO	EDN	ETH
1000	980	0.	682.
980	960	0.	1004.
960	940	0.	1791.
940	920	0.	1791.
920	900	0.	2242.
900	880	0.	2242.
880	860	577.	2386.
860	840	1855.	2810.
840	820	2689.	3089.
820	800	3635.	3225.
800	780	4029.	3488.
780	760	4414.	3742.
760	740	4665.	3990.
740	720	4906.	4110.
720	700	5259.	4230.
700	680	5719.	4346.
680	660	5942.	4456.
660	640	6265.	4456.
640	620	6476.	4563.
620	600	6579.	4767.
600	580	6677.	4865.
580	560	6771.	5053.
560	540	6956.	5146.
540	520	7043.	5409.
520	500	7213.	5409.
500	480	7213.	5491.
480	460	7213.	5648.
460	440	7286.	5648.
440	420	7356.	5718.
420	400	7356.	5787.
400	380	7356.	5917.
380	360	7480.	5917.
360	340	7480.	5977.
340	320	7480.	6030.
320	300	7533.	6132.
300	280	7533.	6229.
280	260	7577.	6320.
260	240	7577.	6403.
240	220	7654.	6482.
220	200	7654.	6517.
200	180	7654.	6548.
180	160	7654.	6548.
160	140	7654.	6622.
140	120	7654.	6622.
120	100	7689.	6661.
100	80	7717.	6676.
80	60	7717.	6686.
60	40	7724.	6686.
40	20	7724.	6714.
20	0	7728.	6721.

LOCATION: 85710A

DATE: 23 AUG 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	0.	0.
940	920	767.	0.
920	900	3351.	0.
900	880	4540.	739.
880	860	5121.	1754.
860	840	5685.	2179.
840	820	5962.	2455.
820	800	6231.	2727.
800	780	6362.	3252.
780	760	6619.	3378.
760	740	6870.	3630.
740	720	6991.	4118.
720	700	6991.	4237.
700	680	7107.	4353.
680	660	7218.	4464.
660	640	7218.	4572.
640	620	7323.	4678.
620	600	7323.	4781.
600	580	7423.	4878.
580	560	7423.	4878.
560	540	7515.	5154.
540	520	7515.	5243.
520	500	7684.	5243.
500	480	7684.	5325.
480	460	7684.	5402.
460	440	7758.	5402.
440	420	7758.	5473.
420	400	7758.	5473.
400	380	7758.	5539.
380	360	7820.	5539.
360	340	7820.	5598.
340	320	7820.	5653.
320	300	7820.	5653.
300	280	7820.	5701.
280	260	7867.	5701.
260	240	7867.	5743.
240	220	7867.	5819.
220	200	7867.	5855.
200	180	7867.	5886.
180	160	7896.	5940.
160	140	7896.	5966.
140	120	7896.	5966.
120	100	7896.	6023.
100	80	7912.	6054.
80	60	7924.	6089.
60	40	7924.	6132.
40	20	7929.	6154.
20	0	7939.	6162.

DATE: 24 AUG 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	0.	0.
940	920	0.	154.
920	900	1816.	154.
900	880	2855.	450.
880	860	4448.	1322.
860	840	5442.	2031.
840	820	5995.	2444.
820	800	6399.	2579.
800	780	6532.	2975.
780	760	6914.	3104.
760	740	7165.	3356.
740	720	7407.	3723.
720	700	7643.	3841.
700	680	7757.	4071.
680	660	7981.	4293.
660	640	8089.	4400.
640	620	8195.	4506.
620	600	8297.	4711.
600	580	8495.	4907.
580	560	8495.	5001.
560	540	8678.	5186.
540	520	8678.	5275.
520	500	8847.	5360.
500	480	8930.	5443.
480	460	8930.	5602.
460	440	9080.	5602.
440	420	9080.	5673.
420	400	9080.	5741.
400	380	9144.	5805.
380	360	9205.	5867.
360	340	9205.	5867.
340	320	9205.	5978.
320	300	9205.	6031.
300	280	9302.	6128.
280	260	9302.	6173.
260	240	9302.	6216.
240	220	9302.	6292.
220	200	9302.	6326.
200	180	9333.	6357.
180	160	9360.	6385.
160	140	9360.	6435.
140	120	9381.	6457.
120	100	9381.	6494.
100	80	9381.	6509.
80	60	9381.	6532.
60	40	9388.	6557.
40	20	9388.	6567.
20	0	9389.	6575.

LOCATION: 85710A

DATE: 25 AUG 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	0.	0.
940	920	0.	0.
920	900	0.	0.
900	880	588.	0.
880	860	3787.	576.
860	840	4636.	1569.
840	820	5327.	1986.
820	800	5732.	2392.
800	780	6128.	2767.
780	760	6642.	3043.
760	740	6893.	3294.
740	720	7137.	3537.
720	700	7492.	3773.
700	680	7607.	3887.
680	660	7829.	4001.
660	640	7829.	4220.
640	620	8042.	4430.
620	600	8244.	4633.
600	580	8343.	4633.
580	560	8437.	4825.
560	540	8529.	5007.
540	520	8616.	5007.
520	500	8700.	5179.
500	480	8700.	5340.
460	460	8779.	5340.
460	440	8854.	5491.
440	420	8854.	5491.
420	400	8923.	5630.
400	380	8987.	5759.
380	360	8987.	5759.
360	340	8987.	5875.
340	320	9044.	5929.
320	300	9095.	5932.
300	280	9095.	6029.
280	260	9095.	6076.
260	240	9136.	6158.
240	220	9173.	6158.
220	200	9173.	6228.
200	180	9173.	6259.
180	160	9173.	6288.
160	140	9197.	6338.
140	120	9197.	6338.
120	100	9214.	6377.
100	80	9214.	6407.
80	60	9214.	6429.
60	40	9214.	6443.
40	20	9214.	6452.
20	0	9218.	6461.

DATE: 26 AUG 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	0.	0.
940	920	0.	0.
920	900	0.	0.
900	880	2668.	0.
880	860	4407.	720.
860	840	4976.	1572.
840	820	5809.	1988.
820	800	6213.	2528.
800	780	6608.	2660.
780	760	6865.	3046.
760	740	7240.	3297.
740	720	7484.	3541.
720	700	7719.	3777.
700	680	7833.	4006.
680	660	7945.	4227.
660	640	8054.	4227.
640	620	8265.	4439.
620	600	8265.	4641.
600	580	8463.	4835.
580	560	8557.	4835.
560	540	8648.	5018.
540	520	8648.	5105.
520	500	8818.	5192.
500	480	8818.	5354.
480	460	8895.	5354.
460	440	8969.	5506.
440	420	8969.	5576.
420	400	9038.	5716.
400	380	9038.	5780.
380	360	9100.	5780.
360	340	9100.	5897.
340	320	9154.	5951.
320	300	9154.	6004.
300	280	9203.	6098.
280	260	9203.	6098.
260	240	9203.	6180.
240	220	9241.	6180.
220	200	9241.	6252.
200	180	9274.	6312.
180	160	9274.	6312.
160	140	9274.	6361.
140	120	9274.	6361.
120	100	9291.	6399.
100	80	9307.	6427.
80	60	9307.	6448.
60	40	9307.	6461.
40	20	9307.	6469.
20	0	9311.	6476.

ORIGINAL PAGE IS
OF POOR QUALITY

LOCATION: 85710A

DATE: 30 AUG 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	0.	0.
940	920	0.	0.
920	900	0.	0.
900	880	2666.	0.
880	860	3246.	1012.
860	840	3815.	1722.
840	820	4367.	2137.
820	800	4907.	2541.
800	780	5431.	2805.
780	760	5943.	3189.
760	740	6193.	3436.
740	720	6558.	3557.
720	700	6676.	3676.
700	680	7022.	3908.
680	660	7245.	4020.
660	640	7462.	4238.
640	620	7670.	4448.
620	600	7670.	4548.
600	580	7868.	4648.
580	560	7962.	4839.
560	540	8053.	4839.
540	520	8140.	5018.
520	500	8225.	5188.
500	480	8306.	5188.
480	460	8306.	5347.
460	440	8306.	5495.
440	420	8450.	5495.
420	400	8450.	5630.
400	380	8450.	5630.
380	360	8512.	5754.
360	340	8512.	5868.
340	320	8621.	5868.
320	300	8621.	5969.
300	280	8621.	5969.
280	260	8666.	6058.
260	240	8709.	6058.
240	220	8709.	6136.
220	200	8743.	6170.
200	180	8743.	6203.
180	160	8771.	6258.
160	140	8771.	6258.
140	120	8793.	6303.
120	100	8793.	6338.
100	80	8793.	6353.
80	60	8805.	6376.
60	40	8815.	6393.
40	20	8815.	6405.
20	0	8815.	6414.

DATE: 31 AUG 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	0.	0.
940	920	0.	0.
920	900	0.	0.
900	880	0.	0.
880	860	0.	0.
860	840	0.	703.
840	820	827.	1537.
820	800	2851.	1944.
800	780	3647.	2471.
780	760	4674.	2726.
760	740	5175.	2851.
740	720	5541.	3218.
720	700	5897.	3454.
700	680	6129.	3569.
680	660	6354.	3794.
660	640	6680.	4010.
640	620	6888.	4116.
620	600	6989.	4320.
600	580	7089.	4515.
580	560	7278.	4609.
560	540	7370.	4701.
540	520	7459.	4790.
520	500	7543.	4960.
500	480	7625.	5041.
480	460	7702.	5120.
460	440	7777.	5196.
440	420	7777.	5339.
420	400	7846.	5406.
400	380	7912.	5472.
380	360	7912.	5533.
360	340	7971.	5592.
340	320	7971.	5702.
320	300	7971.	5702.
300	280	8065.	5799.
280	260	8110.	5844.
260	240	8110.	5887.
240	220	8110.	5926.
220	200	8179.	5998.
200	180	8179.	6030.
180	160	8179.	6060.
160	140	8179.	6112.
140	120	8199.	6154.
120	100	8199.	6171.
100	80	8199.	6185.
80	60	8210.	6209.
60	40	8210.	6227.
40	20	8210.	6241.
20	0	8215.	6247.

LOCATION: 85710A

DATE: 01 SEP 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	0.	0.
940	920	0.	0.
920	900	0.	0.
900	880	0.	0.
880	860	0.	0.
860	840	0.	0.
840	820	0.	686.
820	800	267.	1363.
800	780	2239.	1891.
780	760	2881.	2275.
760	740	3635.	2524.
740	720	3879.	2768.
720	700	4235.	3123.
700	680	4465.	3353.
680	660	4801.	3464.
660	640	5019.	3571.
640	620	5124.	3783.
620	600	5124.	3986.
600	580	5318.	4182.
580	560	5510.	4275.
560	540	5693.	4368.
540	520	5693.	4456.
520	500	5779.	4540.
500	480	5779.	4540.
480	460	5779.	4696.
460	440	5930.	4847.
440	420	5930.	4847.
420	400	6135.	4847.
400	380	6198.	4914.
380	360	6198.	4914.
360	340	6255.	4972.
340	320	6255.	5084.
320	300	6255.	5136.
300	280	6255.	5327.
280	260	6301.	5327.
260	240	6341.	5450.
240	220	6341.	5527.
220	200	6341.	5562.
200	180	6374.	5562.
180	160	6402.	5649.
160	140	6428.	5649.
140	120	6471.	5692.
120	100	6471.	5711.
100	80	6471.	5725.
80	60	6493.	5736.
60	40	6493.	5763.
40	20	6502.	5775.
20	0	6512.	5787.

DATE: 02 SEP 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	0.	156.
940	920	0.	470.
920	900	0.	623.
900	880	0.	772.
880	860	0.	1061.
860	840	0.	1343.
840	820	0.	1620.
820	800	0.	1891.
800	780	0.	1891.
780	760	255.	1891.
760	740	754.	1891.
740	720	1483.	2014.
720	700	2075.	2014.
700	680	2537.	2128.
680	660	2868.	2241.
660	640	3194.	2456.
640	620	3194.	2668.
620	600	3398.	2871.
600	580	3694.	3065.
580	560	3790.	3449.
560	540	3881.	3726.
540	520	3970.	3901.
520	500	4054.	4069.
500	480	4136.	4069.
480	460	4216.	4146.
460	440	4289.	4220.
440	420	4289.	4220.
420	400	4357.	4355.
400	380	4421.	4419.
380	360	4603.	4480.
360	340	4603.	4480.
340	320	4658.	4592.
320	300	4710.	4747.
300	280	4760.	4796.
280	260	4850.	4974.
260	240	4893.	5016.
240	220	4970.	5091.
220	200	4970.	5091.
200	180	5032.	5124.
180	160	5059.	5180.
160	140	5059.	5205.
140	120	5059.	5249.
120	100	5076.	5286.
100	80	5076.	5330.
80	60	5076.	5340.
60	40	5086.	5364.
40	20	5099.	5379.
20	0	5113.	5384.

LOCATION: 85710A

DATE: 03 SEP 1974

FHI	FLO	EDN	ETH
1000	980	0.	0.
980	960	0.	0.
960	940	0.	0.
940	920	0.	0.
920	900	0.	0.
900	880	0.	0.
880	860	0.	0.
860	840	0.	0.
840	820	0.	553.
820	800	0.	1088.
800	780	0.	1749.
780	760	764.	2136.
760	740	2263.	2636.
740	720	3596.	2756.
720	700	4188.	3109.
700	680	4531.	3223.
680	660	4642.	3446.
660	640	4968.	3556.
640	620	5177.	3767.
620	600	5382.	3971.
600	580	5481.	4167.
580	560	5575.	4167.
560	540	5665.	4351.
540	520	5665.	4527.
520	500	5665.	4527.
500	480	5665.	4692.
480	460	5665.	4849.
460	440	5665.	4998.
440	420	5665.	4998.
420	400	5665.	5067.
400	380	5729.	5131.
380	360	5729.	5192.
360	340	5729.	5192.
340	320	5729.	5248.
320	300	5729.	5248.
300	280	5729.	5248.
280	260	5776.	5248.
260	240	5776.	5248.
240	220	5814.	5323.
220	200	5882.	5323.
200	180	5882.	5386.
180	160	5882.	5386.
160	140	5960.	5489.
140	120	5960.	5511.
120	100	5960.	5566.
100	80	5974.	5623.
80	60	5986.	5634.
60	40	5993.	5641.
40	20	6004.	5657.
20	0	6016.	5665.